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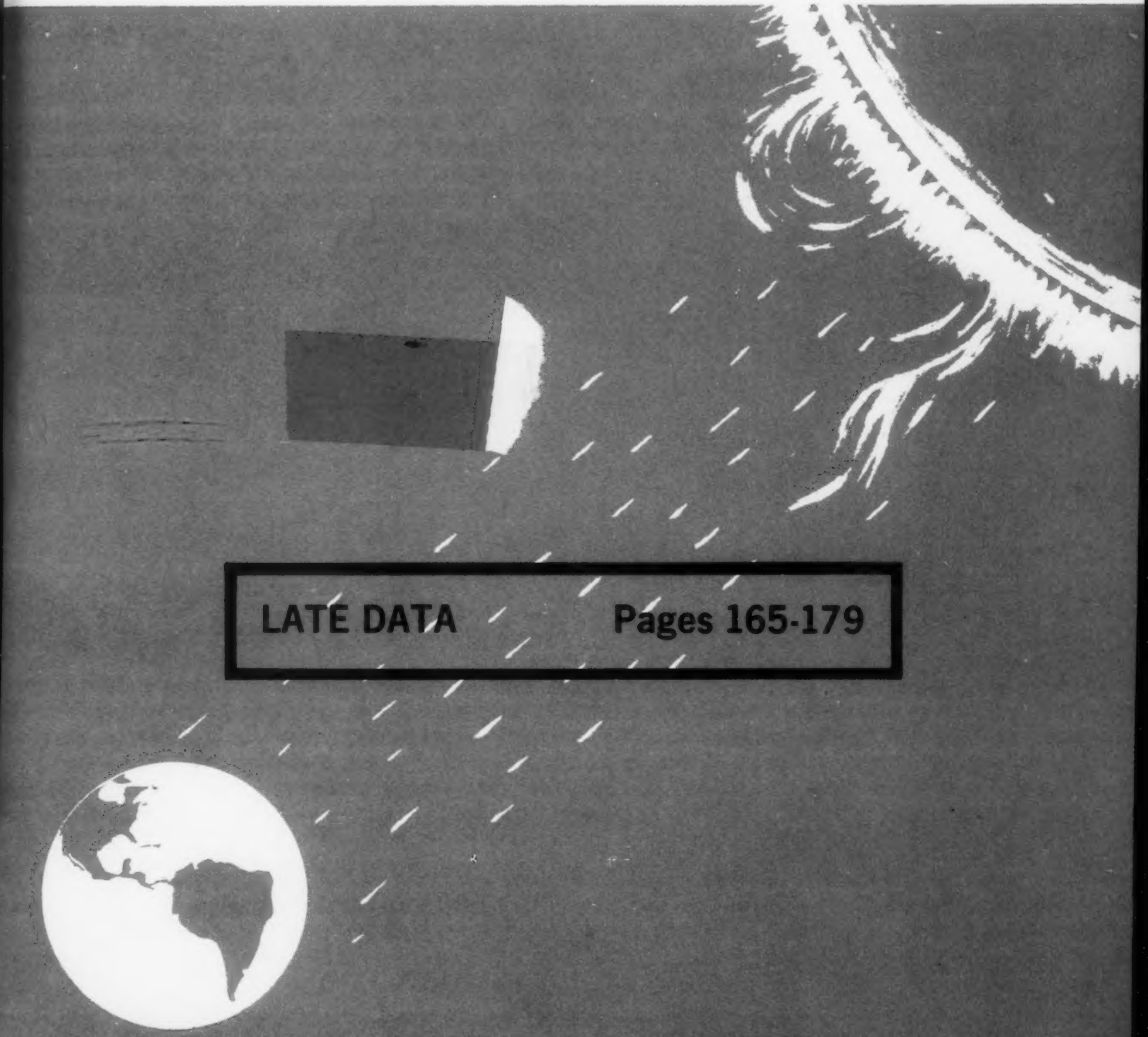
SEPTEMBER 1982 NUMBER 457 -- Part I

Solar-Geophysical Data prompt reports

Data for August 1982, July 1982 & Late Data

Explanation of Data Reports Issued as Number 450 (Supplement) February 1982



LATE DATA **Pages 165-179**

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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 457 SEPTEMBER 1982

DATA FOR
AUGUST 1982
JULY 1982

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SOLAR-GEOPHYSICAL DATA

No. 457

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

CONTENTS

Part I (Prompt Reports)

	PAGE
Index for 1981-1982	2
Data for August 1982	3-43
Data for July 1982	45-163
Late Data	165-181
Regions of Solar Activity June 1982	
Daily Calcium Plage Index June 1982	
Active Region List May 1982	
Cosmic Rays--Climax/Kiel/Tokyo May-June 1982	
Huancayo April-May 1982	

Part II (Comprehensive Reports)

Index for 1981-1982	2
Data for March 1982	3-73
Solar Flare Data May 1980	75-115
Miscellaneous Data	117-126
IMP 8 Solar Wind June 1981-February 1982	

83 5 228AA5 2 013 1 SN 3075

DETAILED COVERAGE FOR 1981-82 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1981 Aug	Sep	Oct	Nov	Dec	1982 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
A.	SOLAR AND INTERPLANETARY PHENOMENA													
A.1	Sunspot Drawings	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.2aa	International Provisional Relative Sunspot Numbers R_I	445A 11	446A 11	447A 11	448A 11	[illegible] 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9
A.2c	American Relative Sunspot Numbers Ra	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9
A.3a	Mt. Wilson Magnetograms	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	447A163	447A114	448A114	449A110	450A104	451A120	452A106	453A102	454A104	455A126	457A166	457A112	
A.3c	Kitt Peak Magnetograms	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.3d	Mean Solar Magnetic Field (Stanford)	445A 47	446A 34	447A 46	448A 44	449A 38	450A 34	451A 50	452A 42	453A 32	454A 32	455A 56	456A 48	457A 42
A.3e	Stanford Magnetograms	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.4	H-alpha Filtergrams	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.5	Calcium Plage Drawings - Mt. Wilson or Big Bear	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.5a	Calcium Plage (Mt. Wilson or Big Bear) and Sunspot Regions	447A163	447A114	448A114	449A110	450A104	451A120	452A106	453A102	454A104	455A126	457A166	457A112	
A.5b	Mt. Wilson or Big Bear Daily Calcium Plage Indices	447A175	447A128	449A172	449A127	450A118	451A135	452A118	453A113	454A117	455A138	457A176	457A122	
A.6	H-alpha Synoptic Charts	446A 38	447A 50	448A 48	449A 42	450A 38	451A 54	452A 46	453A 36	454A 36	456A 52	456A 53	457A 46	
A.6b	Synoptic Chart and Active Regions (Paris)	451B 95	452B 56	454B 38	455B 36	455B 37								
A.6c	Stanford Solar Magnetic Field Synoptic Charts	446A 39	447A 51	448A 50	449A 44	450A 39	451A 55	452A 47	453A 37	454A 38	455A 61	456A 55		
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	449A196	449A198	449A 46	449A 47	450A 40	451A 56	452A 48	453A 38	454A 40	455A 62	456A 56	457A 48	
A.6e	Mass Ejections from the Sun	450B 60	451B 45	452B 53	453B 64	454B 35	455B 32	456B 83	457B 73					
A.7f	Helium D3 Chromosphere (Big Bear)	----	446A 30	----	448A 40	----	----	----	----	----	----	----	----	
A.7g	Helium Synoptic Maps (KPNO)	449A197	449A199	449A 48	449A 49	----	451A 57	452A 49	45A144	454A 42	455A 63	456A 56	457A 49	
A.7h	Coronal Line Emission (Sac Peak)	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	445A 11	----	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9
A.10a	169 MHz - Interferometric Observations (Nancay)	445A 27	446A 20	447A 28	448A 25	449A 25	450A 23	452A162	452A 28	455A162	454A 21	455A 30		
A.10c	21 cm East-West Solar Scans (Fleurs)	445A 30	446A 23	447A 32	448A 28	449A 28	450A 26	451A 33	452A 31	----	----	455A 33	456A 30	457A 29
A.10d	43 cm East-West Solar Scans (Fleurs)	445A 31	446A 24	447A 33	448A 29	449A 29	450A 27	451A 34	452A 32	----	----	----	456A 30	457A 30
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	445A 29	446A 22	447A 31	448A 27	449A 27	450A 25	451A 32	452A 30	453A 25	454A 23	455A 32	456A 29	457A 28
A.10f	3 cm East-West Solar Scans (Toyokawa)	445A 30	----	447A 29	448A 26	449A 26	450A 24	451A 31	452A 29	453A 24	454A 22	455A 31	456A 28	457A 27
A.10g	8 cm East-West Solar Scans (Toyokawa)		446A 21	447A 30	----	----	----	----	----	----	----	----	----	----
A.11g	Solar X-ray (SMS/GOES) (graphs)	450B 54	451B 40	452B 47	453B 59	454B 29	455B 26	456B 78	457B 67					
A.12e	Energetic Solar Particles (IMP H & J) 1980	452B 65	452B 70	454B 40										
A.13d	Solar Wind from IPS Measurements	445A 42	447A160	447A 41	448A 38	451A166	451A169	451A 45						
A.13e	Solar Plasma (IMP H & J)	457B120	457B121	457B122	457B123	457B124	457B125	457B126	457B 66					
A.13f	Solar Wind (Pioneer 12 (Venus))	445A 45	446A 31	447A 43	448A 41	449A 35	450A 31	451A 51	452A 43	453A 33	454A 33	455A 57	456A 45	457A 39
A.17	Interplanetary Magnetic Field (Pioneer 12)	446A107	447A129	450A148	----	----	452A163	452A123	455A175	455A175	455A142	----	457A129	
A.17c	Inferred IP Magnetic Field	445A 46	446A 32	447A 44	448A 42	449A 36	450A 32	451A 48	452A 40	453A 30	454A 30	455A 54	456A 46	457A 40
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA													
B.52	Graphs of Transmission Frequency Range	446A140	447A156	448A154	449A164	450A144	451A162	452A158	453A144	454A140	455A158	456A156	457A162	
B.53	Quality Figures Based on Frequency Ranges	446A139	447A158	448A156	449A166	450A143	451A161	452A160	453A143	454A142	455A157	456A158	457A161	
C.	FLARE-ASSOCIATED EVENTS													
C.1a	Optical Observations Flares	445A 16	446A 16	447A 16	448A 16	449A 16	450A 16	451A 16	452A 16	453A 16	454A 14	455A 16	456A 14	457A 14
C.1ba	Optical Observations Flares (Standardized Data) 1980										457B 76			
C.1d	Flare Patrol Observations	445A 26	446A 19	448A158	----	449A 24	450A 22	451A 30	452A 27	453A 23	454A 20	455A 29	456A 27	457A 26
C.1d	Flare Patrol Observations 1980										457B115			
C.1e	Flare Indices (by day) 1980										457B114			
C.1f	Flare Indices (by Region) 1980													
C.3	Solar Radio Waves - Outstanding Occurrences	450B 4	451B 4	452B 4	453B 4	454B 4	455B 4	456B 4	457B 4					
	Solar Radio Waves - Fixed Frequencies - Selected	445A 32	446A 25	447A 34	448A 30	449A 30	450A 28	451A 35	452A 33	453A 26	454A 24	455A 34	456A 31	457A 31
C.4a	Solar Radio Spectral Obs. (Fort Davis)	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	
C.4d	Solar Radio Spectral Obs. (Culgoora)	446A108	447A130	448A173	449A132	450A122	451A140	452A124	455A163	455A170	455A143	456A124	457A130	
C.4e	Solar Radio Spectral Obs. (Weissenau)	446A108	447A130	448A173	449A132	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	446A108	447A130	448A134	449A132	450A122								
C.4i	Solar Radio Spectral Obs. (Bleien)	----	----	----	----	----	451A140	452A124	454A145					
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	
C.4l	Solar Radio Spectral Obs. (Palehua)	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	
C.5e	Solar X-ray (SMS/GOES) (graphs)	450B 54	451B 40	452B 47	453B59	454B 29	455B 26	456B 78	457B 67					
C.6	Sudden Ionospheric Disturbances	446A102	448159	449A168	449A128	450A119	451A136	452A119	453A114	454A118	455A139	456A118	457A123	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA													
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	446A135	447A152	448A150	449A159	450A138	451A151	452A152	453A136	454A134	455A153	456A149	457A154	
D.1ba	27-day Chart of Kp Indices	446A137	447A154	448A152	449A161	450A140	451A153	452A154	453A138	454A136	455A155	456A151	457A156	
D.1c	27-day Chart of C9	451A158	451A158	451A158	451A158	451A158								
D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	447A180	448A164	449A186	449A162	450A141	451A159	452A155	453A141	454A139	455A156	456A154	457A159	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	446A138	447A155	448A153	449A163	450A142	451A160	452A157	453A142	456A160		456A155	457A160	
D.1g	Equatorial Indices Dst	447A179	448A163	449A185	450A153	451A175	452A165	453A148	453A140	454A138	456A160	456A153	457A158	
D.1h	Geomagnetic Substorm Log (Boulder)	445A 4	446A 35	447A 47	448A 45	449A 39	450A 35	451A 52	452A 44	453A 34	454A 34	455A 58	456A 49	457A 43
F.	COSMIC RAYS													
F.1a	Cosmic Ray Neutron Counts (Deep River)	447A177	447A151	449A180	450A149	450A134	451A151	452A151	453A135	455A177	455A152	456A148	457A153	
F.1b	Cosmic Ray Neutron Counts (Climax)	447A177	447A151	449A180	450A149	451A172	454A150	454A150	454A150	454A131	457A176	457A178		
F.1e	Cosmic Ray Neutron Counts (Alert)	447A177	447A151	449A180	450A149	450A134	451A151	452A151	453A135	455A177	455A152	456A148	457A153	
F.1h	Cosmic Ray Neutron Counts (Thule)	446A134	447A151	448A149	449A158	450A134	451A151	452A151	453A135	454A131	455A152	456A148	457A153	
F.1i	Cosmic Ray Neutron Counts (Kiel)	447A177	447A151	448A149	450A149	450A134	451A151	452A151	453A135	454A131	457A178	457A178	457A153	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	447A177	447A151	448A149	450A149	450A134	451A151	452A151	453A135	454A131	457A178	457A178	457A153	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	447A177	447A151	449A180	450A149	451A172	454A150	454A150	454A150	457A176	457A178			
H.	MISCELLANEOUS													
H.60	IUWDS Alert Decisions	445A 5	446A 4	447A 4	448A 4	449A 5	450A 5	451A 5	452A 5	453A 5	454A 4	455A 5	456A 4	457A 4

Notes:

"446A 40" listed under 1981 Aug means that the sunspot drawings for Aug 1981 were contained in Solar-Geophysical Data Number 446 - Part I, beginning on page 40.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

AUGUST 1982 DATA

Contents

Page

Alert Periods
IUWDS Alert Periods (Advance and Worldwide) 4-7

Daily Solar Indices
Relative Sunspot Numbers, R_Z or Ri, and Daily Solar Flux at 2800 MHz (12 Month Tables) 8
Daily Solar Indices (Sunspot Numbers and Solar Fluxes) 9
Observed and Predicted Solar Activity Indices 10
Smoothed Observed and Predicted Sunspot Numbers 11
Graph of Observed and Predicted Sunspot Numbers 12
Graph of Superposition of Cycles 18, 19 and 20 13

Solar Flares
H-alpha Solar Flares 14-25
Intervals of No Flare Patrol Observation 26

Solar Radio Emission
169 MHz Solar Interferometric Chart - Nancay (Data not available at time of publication.)
3 cm East-West Solar Scans - Toyokawa 27
10.7 cm East-West Solar Scans - ARO, Ottawa 28
21 cm East-West Solar Scans - Fleurs 29
43 cm East-West Solar Scans - Fleurs 30
Selected Fixed Frequency Events 31-37
Selected Solar Noise Bursts 38

Solar Wind Measurements
Interplanetary Scintillations (Data not available at time of publication.)

Coronal Holes
Helium D3 Chromosphere (Data not available at time of publication.)

Spacecraft Observations
Pioneer XII (Pioneer Venus) Solar Wind 39

Inferred Interplanetary Magnetic Field Polarities 40

Mean Solar Magnetic Field
Stanford Mean Solar Magnetic Field (Chart) 41
Stanford Mean Solar Magnetic Field (Table) 42

Geomagnetic
Boulder Geomagnetic Substorm Log 43

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
213	01	31	085	111	024	S16W54	0	0	0		01	S16W54	Q	SOLQUIET
						N07W13	2	0	0			N07W13	E	MAGQUIET
						S12W06	0	0	0			S12W06	Q	
						S12E37	2	0	0			S12E37	E	
						N16E56	1	0	0			N16E56	E	
214	02	01	129	120	010	N07W27	0	0	0		02	N07W27	Q	SOLQUIET CAUTION EAST LIMB
						S12W18	1	0	0			S12W18	Q	MAGQUIET
						S14W10	0	0	0			S14W10	Q	
						S09W08	0	0	0			S09W08	Q	
						S12E23	1	0	0			S12E23	Q	
						N16E42	2	0	0			N16E42	Q	
						S18E88	0	0	0			S18E88	A	
215	03	02	113	144	026	N07W41	0	0	0	Presto Soflare	03	N07W41	Q	SOLALERT 03/XX
						S11W30	1	0	0	C6/2B S13W22		S11W30	Q	MAGALERT MINOR 03
						S12E10	4	0	0	02/1620Z Duration		S12E10	Q	
						N17E30	2	0	0	16 Minutes.		N17E30	Q	
						S16E66	0	0	0			S16E66	E	
216	04	03	109	151	026	S11W03	1	0	0		04	S11W03	E	SOLALERT MINOR 04
						N17E17	3	1	0			N17E17	A	MAGNIL
						N09E51	0	0	0			N09E51	Q	
						S16E54	0	0	0			S16E54	E	
						N10E77	1	0	0			N10E77	Q	
217	05	04	137	163	016	S12W17	2	0	0		05	S12W17	E	SOLALERT 05
						N17E01	2	0	0			N17E01	E	MAGQUIET
						N09E30	2	0	0			N09E30	Q	
						S16E39	0	0	0			S16E39	Q	
						N10E70	6	0	0			N10E70	Q	
218	06	05	195	176	018	S12W30	3	0	0		06	S12W30	E	SOLALERT 06
						N16W13	0	0	0			N16W13	Q	MAGQUIET
						N10E14	1	0	0			N10E14	E	
						S15E14	1	0	0			S15E14	Q	
						S16E26	0	0	0			S16E36	Q	
						S12E37	0	0	0			S12E37	Q	
						N10E55	7	0	0			N10E55	A	
						N10E69	4	1	0			N10E69	Q	
219	07	06	249	196	023	S07W75	0	0	0		07	S07W75	Q	SOLALERT 07
						S12W44	8	1	0			S12W44	E	MAGALERT 07/08
						N17W25	0	0	0			N17W25	Q	
						N10E01	4	0	0			N10E01	E	
						S14E02	4	0	0			S14E02	Q	
						S14E13	0	0	0			S14E13	Q	
						S12E21	0	0	0			S12E21	Q	
						N10E41	4	0	0			N10E41	A	
						N12E55	10	0	0			N12E55	E	
						N20E65	0	0	0			N20E65	Q	
220	08	07	286	214	070	S12W58	6	0	0	Presto Strong	08	S12W58	E	SOLALERT 08/XX
						N10W13	3	0	0	Magstorm in Progress		N10W13	E	MAGALERT 08/XX
						S15W11	2	0	0	07/0600Z A=70 is		S15W11	E	
						S14W02	1	0	0	Expected 07 August.		S14W02	Q	
						S11E08	0	0	0	Soflare M1/2B		S11E08	Q	
						N10E26	5	0	0	N14E59 07/1207Z		N10E26	E	
						N12E41	9	1	0			N12E41	A	
						S08E49	1	0	0			S08E49	Q	
						N21E52	1	0	0			N21E52	Q	
						S07E73	0	0	0			S07E73	Q	
						N17E78	0	0	0			N17E78	Q	
221	09	08	274	214	010	S11W71	7	1	0	Presto Tenflare	09	S11W71	E	SOLALERT 09/XX
						N10W27	1	0	0	150 Flux Units		N10W27	E	MAGNIL
						S15W26	1	0	0	08/0202Z Duration		S15W26	E	
						S15W15	0	0	0	10 Minutes.Soflare		S15W15	Q	
						S11W06	1	0	0	M1/2B N14E71		S11W06	Q	
						N10E13	5	1	0	08/1603Z Duration		N10E13	A	
						N12E27	6	1	0	42 Minutes.		N12E27	A	
						S08E36	1	0	0			S08E36	Q	
						N19E38	0	0	0			N19E38	Q	
						S07E58	2	0	0			S07E58	E	
						N16E65	2	1	0			N16E65	Q	
222	10	09	238	207	020	S11W87	2	0	0	Presto Soflare	10	S11W87	Q	SOLALERT 10
						N09W40	0	0	0	M2/2B N15E23		N09W40	Q	MAGQUIET
						S16W39	1	0	0	09/0645Z Duration		S16W39	E	
						S16W29	0	0	0	18 Minutes.		S16W29	Q	
						S11W21	2	0	0			S11W21	Q	
						N11W01	5	0	0			N11W01	E	
						N11E14	5	1	0			N11E14	A	
						S07E22	1	0	0			S07E22	Q	
						S07E44	1	0	0			S07E44	Q	
						N16E52	1	0	0			N16E52	Q	
223	11	10	297	204	028	N09W53	0	0	0		11	N09W53	Q	SOLALERT 11
						S16W52	0	0	0			N16W52	Q	MAGALERT 12
						S19W50	1	0	0			S19W50	Q	
						S14W42	0	0	0			S14W42	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions Location Lat-Long	No. of Flares Total	M	X	Outstanding events	Forecasts Date	Location Lat-Long	Desc*	Alert Situations
						S12W35	0	0	0			S12W35	Q	
						S12W34	0	0	0			S12W34	Q	
						S17W33	0	0	0			S17W33	Q	
						N15W18	0	0	0			N15W18	Q	
						N10W13	9	2	0			N10W13	A	
						N20W02	0	0	0			N20W02	Q	
						N11E02	2	0	0			N11E02	A	
						S08E08	3	0	0			S08E08	Q	
						S12E18	0	0	0			S12E18	Q	
						S08E31	2	0	0			S08E31	Q	
						S12E37	0	0	0			S12E37	Q	
						N16E39	4	0	0			N16E39	Q	
224	12	11	264	202	020	N10W72	1	0	0	Presto Tenflare	12	N10W72	E	SOLALERT 12/13
						S15W67	1	0	0	260 Flux Units		S15W67	Q	MAGALERT 12
						S19W64	2	0	0	11/1139Z Duration		S19W64	Q	
						S14W57	0	0	0	10 Minutes		S14W57	Q	
						S15W49	1	0	0			S15W49	Q	
						N16W34	0	0	0			N16W34	Q	
						N10W28	4	0	0			N10W28	E	
						N12W11	9	0	0			N12W11	Q	
						S09W06	0	0	0			S09W06	Q	
						N50W05	0	0	0			N50W05	Q	
						S08E16	0	0	0			S08E16	Q	
						S23E20	0	0	0			S23E20	Q	
						S11E21	0	0	0			S11E21	Q	
						N17E26	2	0	0			N17E26	Q	
						S13E51	0	0	0			S13E51	Q	
225	13	12	264	191	025	N10W85	1	0	0		13	N10W85	Q	SOLALERT MINOR 13
						S19W79	0	0	0			S19W79	Q	MAGNIL
						S18W75	4	0	0			S18W75	Q	
						S15W67	0	0	0			S15W67	Q	
						S15W66	1	0	0			S15W66	Q	
						N09W42	4	0	0			N09W42	E	
						N12W25	11	0	0			N12W25	E	
						S09W20	1	0	0			S09W20	Q	
						S08E03	4	0	0			S08E03	E	
						S11E06	0	0	0			S11E06	Q	
						S22E08	1	0	0			S22E08	Q	
						N17E13	0	0	0			N17E13	Q	
						S26E26	0	0	0			S26E26	Q	
						S12E37	3	0	0			S12E37	Q	
226	14	13	208	181	015	S19W89	0	0	0	Presto Tenflare	14	S19W89	Q	SOLNIL
						S16W81	0	0	0	100 Flux Units		S16W81	Q	MAGQUIET
						N10W55	14	1	0	13/2259Z Duration		N10W55	E	
						N12W40	4	0	0	10 Minutes.		N12W40	E	
						N20W40	0	0	0			N20W40	Q	
						S09W34	2	0	0			S09W34	Q	
						S07W11	3	0	0			S07W11	E	
						N17W02	1	0	0			N17W02	Q	
						S13E23	8	0	0			S13E23	Q	
227	15	14	162	172	010	N10W68	8	3	0	Presto Tenflare	15	N10W68	A	SOLQUIET
						N13W53	10	0	0	880 Flux Units		N13W53	E	MAGQUIET
						S08W48	1	0	0	14/0507Z Duration		S08W48	Q	
						S06W23	3	0	C	14 Minutes.		S06W23	Q	
						N17W14	1	0	0			N17W14	Q	
						S12E08	5	0	0			S12E08	Q	
						N16E26	0	0	0			N16E26	Q	
						N14E45	0	0	0			N14E45	Q	
						S05E64	11	0	0			S05E64	Q	
228	16	15	177	169	004	N08W84	2	0	0		16	N08W84	E	SOLQUIET
						N12W65	3	0	0			N12W65	E	MAGQUIET
						S08W62	2	0	0			S08W62	Q	
						S07W38	1	0	0			S07W38	Q	
						N17W26	4	0	0			N17W26	Q	
						N08W19	3	0	0			N08W19	Q	
						S12W05	9	0	0			S12W05	Q	
						N16E12	0	0	0			N16E12	Q	
						N15E30	0	0	0			N15E30	Q	
						S04E51	2	0	0			S04E51	Q	
229	17	16	193	158	007	N10W76	1	0	0		17	N10W76	Q	SOLQUIET
						S08W72	1	0	0			S08W72	Q	MAGQUIET
						S06W46	0	0	0			S06W46	Q	
						S11W41	0	0	0			S11W41	Q	
						N08W32	3	0	0			N08W32	Q	
						N14W32	0	0	0			N14W32	Q	
						N26W27	0	0	0			N26W27	Q	
						S12W20	3	0	0			S12W20	Q	
						S03E37	0	0	0			S03E37	Q	
						N27E53	0	0	0			N27E53	Q	
						N22E43	0	0	0			N22E43	Q	
230	18	17	168	161	013	N11W91	0	0	0		18	N11W91	E	SOLQUIET
						S07W65	1	0	0			S07W65	Q	MAGQUIET
						N14W46	5	0	0			N14W46	Q	
						N08W45	3	0	0			N08W45	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of obser-vation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	M	X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Desc*	Alert Situations
						S11W32	3	0	0			S11W32	E	
						N13W10	0	0	0			N13W10	Q	
						S04E24	0	0	0			S04E24	Q	
						N21E28	0	0	0			N21E28	Q	
						N26E40	4	0	0			N26E40	Q	
						S13E75	4	1	0			S13E75	Q	
231	19	18	158	164	016	S07W78	0	0	0		19	S07W78	Q	SOLQUIET
						N15W60	0	0	0			N15W60	E	MAGQUIET
						N09W59	0	0	0			N09W59	Q	
						S11W46	4	0	0			S11W46	E	
						N21W41	1	0	0			N21W41	Q	
						N13W24	0	0	0			N13W24	Q	
						S03E08	0	0	0			S03E08	Q	
						N25E26	0	0	0			N25E26	Q	
						S12E66	6	0	0			S12E66	E	
232	20	19	127	156	011	S08W92	0	0	0		20	S08W92	Q	SOLQUIET
						N14W74	0	0	0			N14W74	Q	MAGQUIET
						N08W73	1	0	0			N08W73	Q	
						S11W60	5	0	0			S11W60	E	
						S04W04	1	0	0			S04W04	Q	
						N26E13	0	0	0			N26E13	Q	
						S13E54	8	0	0			S13E54	Q	
233	21	20	138	141	013	N15W90	0	0	0		21	N15W90	Q	SOLQUIET
						N08W87	0	0	0			N08W87	Q	MAGQUIET
						S12W72	3	0	0			S12W72	E	
						S05W18	0	0	0			S05W18	Q	
						N26W02	0	0	0			N26W02	Q	
						S03E14	0	0	0			S03E14	Q	
						S13E40	8	0	0			S13E40	Q	
						N15E64	3	0	0			N15E64	Q	
234	22	21	124	136	014	S12W85	2	0	0	Presto Tenflare	22	S12W85	E	SOLQUIET
						S06W31	2	0	0	360 Flux Units		S06W31	Q	MAGQUIET
						N26W13	0	0	0	21/0113Z Duration		N26W13	Q	
						S03E01	0	0	0	6 Minutes		S03E01	Q	
						S12E28	2	0	0			S12E28	Q	
						N15E40	0	0	0			N15E40	Q	
						N14E52	4	0	0			N14E52	Q	
235	23	22	143	136	017	S07W44	0	0	0		23	S07W44	Q	SOLQUIET
						S09W36	0	0	0			S09W36	Q	MAGQUIET
						N26W27	0	0	0			N26W27	Q	
						S02W13	0	0	0			S02W13	Q	
						S12E14	0	0	0			S12E14	E	
						N14E26	0	0	0			N14E26	Q	
						N15E38	10	0	0			N15E38	Q	
236	24	23	138	138	016	N26W41	0	0	0		24	N26W41	Q	SOLQUIET
						S14W25	0	0	0			S14W25	Q	MAGQUIET
						S03W25	0	0	0			S03W25	Q	
						S12E00	0	0	0			S12E00	E	
						N14E13	0	0	0			N14E13	Q	
						N15E25	7	0	0			N15E25	E	
						S09E30	0	0	0			S09E30	Q	
237	25	24	128	140	022	N26W54	0	0	0		25	N26W54	Q	SOLQUIET
						S14W39	1	0	0			S14W39	Q	MAGQUIET
						S12W13	1	0	0			S12W13	E	
						N15W02	0	0	0			N15W02	Q	
						N15E12	6	0	0			N15E12	E	
						N08E54	1	0	0			N08E54	Q	
238	26	25	158	155	018	N25W68	0	0	0		26	N25W68	Q	SOLQUIET
						S14W54	0	0	0			S14W54	Q	MAGQUIET
						S12W28	1	0	0			S12W28	E	
						N22W13	1	0	0			N22W13	Q	
						N15W02	4	0	0			N15W02	E	
						N08E41	2	0	0			N08E41	E	
						N08E65	0	0	0			N08E65	Q	
239	27	26	198	163	018	S12W41	5	0	0		27	S12W41	Q	SOLQUIET
						N14W29	0	0	0			N14W29	Q	MAGQUIET
						N22W27	2	0	0			N22W27	E	
						N14W15	8	1	0			N14W15	E	
						N08E26	0	0	0			N08E26	Q	
						N07E51	0	0	0			N07E51	Q	
						S23E51	0	0	0			S23E51	Q	
						S13E75	0	0	0			S13E75	Q	
						N11E83	1	0	0			N11E83	Q	
240	28	27	183	177	010	S12W55	9	0	0	Presto Tenflare	28	S12W55	E	SOLQUIET
						N15W41	1	0	0	120 Flux Units		N15W41	Q	MAGQUIET
						N23W39	5	0	0	27/0137Z Duration		N23W39	E	
						N15W28	13	4	0	8 Minutes.		N15W28	A	
						N08E14	0	0	0			N08E14	E	
						S23E38	0	0	0			S23E38	Q	
						N07E39	0	0	0			N07E39	Q	

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						S14E63	0	0	0			S14E63	Q	
						N11E69	6	0	0			N11E69	Q	
241	29	28	190	178	010	S12W71	2	0	0		29	S12W71	E	SOLQUIET
						N15W55	1	0	0			N15W55	Q	MAGQUIET
						N23W53	1	0	0			N23W53	E	
						N15W41	1	0	0			N15W41	A	
						N09W14	2	0	0			N09W14	Q	
						N08E00	1	0	0			N08E00	Q	
						S08E24	1	0	0			S08E24	Q	
						S15E50	1	0	0			S15E50	Q	
						N11E54	4	0	0			N11E54	E	
						S02E77	0	0	0			S02E77	Q	
242	30	29	184	180	026	S12W85	3	0	0		30	S12W85	E	SOLQUIET
						N22W66	0	0	0			N22W66	E	MAGQUIET
						N14W55	3	0	0			N14W55	E	
						N08W27	0	0	0			N08W27	Q	
						N08W13	0	0	0			N08W13	Q	
						N07E08	2	0	0			N07E08	Q	
						S15E37	1	0	0			S15E37	Q	
						N11E41	1	0	0			N11E41	Q	
						S03E65	0	0	0			S03E65	Q	
						S20E65	0	0	0			S20E65	Q	
243	31	30	189	171	023	N22W80	1	0	0		31	N22W80	E	SOLQUIET
						N14W69	0	0	0			N14W69	E	MAGQUIET
						N08W52	0	0	0			N08W52	Q	
						N09W41	0	0	0			N09W41	Q	
						N08W24	0	0	0			N08W24	Q	
						N08W05	0	0	0			N08W05	Q	
						S15E23	0	0	0			S15E23	E	
						N11E27	2	0	0			N11E27	Q	
						S19E51	0	0	0			S19E51	Q	
						S04E53	3	0	0			S04E53	E	
						N11E74	0	0	0			N11E74	Q	
244	01	31	176	177	013	N24W94	3	0	0		01	N24W94	E	SOLQUIET
						N15W83	0	0	0			N15W83	E	MAGQUIET
						N09W55	2	0	0			N09W55	Q	
						N07W37	0	0	0			N07W37	Q	
						N07W18	0	0	0			N07W18	Q	
						S15E09	1	0	0			S15E09	Q	
						N11E14	1	0	0			N11E14	E	
						S03E38	2	0	0			S03E38	E	
						S20E38	1	0	0			S20E38	Q	
						N11E62	1	0	0			N11E62	Q	
						N14E83	0	0	0			N14E83	Q	

A=Active C=Caution D=Doubtful E=Eruptive MF=Major Flare OG=Other Groups P=Proton Q=Quiet

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

02 AUGUST 1982 BOULDER 02/1647Z SOFLARE C6/2B S13W22 02/1620Z DURATION 16 MINUTES
07 AUGUST 1982 BOULDER 07/1315Z STRONG MAGSTORM IN PROGRESS 07/0600Z A VALUE OF 70 EXPECTED FOR 07 AUGUST
08 AUGUST 1982 KAKIOKA 08/0035Z MAGSTORM 06/1836Z
08 AUGUST 1982 TOYOKAWA 08/0225Z TENFLARE 150 FLUX UNITS 08/0202Z DURATION 10 MINUTES
08 AUGUST 1982 BOULDER 08/0200Z SOFLARE M1/2B N14E71 08/1603Z DURATION 42 MINUTES
09 AUGUST 1982 BOULDER 09/1344Z SOFLARE M2/2B N15E23 09/0645Z DURATION 18 MINUTES
11 AUGUST 1982 BOULDER 11/1206Z TENFLARE 260 FLUX UNITS 11/1139Z DURATION 10 MINUTES
14 AUGUST 1982 TOYOKAWA 14/0030Z TENFLARE 100 FLUX UNITS 13/2259Z DURATION 10 MINUTES
14 AUGUST 1982 BOULDER 14/1250Z TENFLARE 880 FLUX UNITS 14/0507Z DURATION 14 MINUTES
21 AUGUST 1982 BOULDER 21/0230Z TENFLARE 360 FLUX UNITS 21/0113Z DURATION 06 MINUTES
27 AUGUST 1982 TOYOKAWA 27/0155Z TENFLARE 120 FLUX UNITS 27/0137Z DURATION 08 MINUTES

RELATIVE SUNSPOT NUMBERS
INTERNATIONAL, R_I

	1981 FINAL				1982 PROVISIONAL							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	205	216	165	193	92	258	168	145	63	70	50	55
2	183	206	222	197	94	241	174	115	57	83	41	68
3	160	219	218	212	112	232	175	151	46	94	33	68
4	170	189	221	212	109	221	177	137	58	104	42	81
5	195	195	233	219	112	219	163	112	63	111	50	97
6	220	169	199	234	86	230	165	117	64	108	32	128
7	205	171	192	244	94	226	146	130	69	115	33	144
8	208	185	184	249	97	232	140	131	89	127	49	150
9	190	177	134	258	98	211	116	132	47	142	61	161
10	196	144	147	253	85	181	122	138	53	147	110	155
11	164	131	146	263	46	158	119	152	58	138	146	157
12	138	123	160	240	52	156	135	142	75	144	177	138
13	132	171	158	185	51	162	155	148	78	139	219	113
14	148	187	178	159	58	142	153	136	58	137	222	100
15	129	212	139	113	81	134	140	127	52	125	234	100
16	138	223	126	66	76	111	156	122	69	128	263	86
17	129	219	103	80	111	120	180	108	76	136	272	93
18	145	210	108	79	139	103	168	91	89	134	220	105
19	156	189	90	74	143	107	167	87	110	134	200	91
20	137	183	82	57	134	119	160	93	112	139	180	77
21	175	145	82	65	134	120	153	91	98	143	129	79
22	172	145	73	75	121	100	146	109	121	146	99	90
23	137	118	65	86	93	97	144	138	107	116	74	71
24	135	109	59	68	70	120	122	145	110	112	27	79
25	142	101	60	62	82	128	152	149	88	92	25	101
26	153	92	60	100	119	136	147	150	117	94	37	98
27	181	75	77	104	125	154	182	126	130	49	22	104
28	195	92	130	136	168	163	179	90	108	36	19	120
29	191	131	148	132	216		169	85	102	32	23	132
30	190	152	165	112	211		162	75	66	38	38	134
31		156		126	237		132		89		54	109
MEAN	167.3	162.4	137.5	150.1	111.2	163.6	153.8	122.5	81.4	110.4	102.6	105.9

1981 YEARLY MEAN = 140.4

* ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1981				1982							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	248.3	210.6*	222.5*	230.7*	179.9	284.8*	231.3	172.2*	151.7	134.2	106.5	123.4
2	242.8	204.8*	241.3*	230.3*	177.2	279.7*	228.3	172.0*	147.4	135.1	106.9	138.2*
3	229.0	196.5	255.3*	238.6	176.1	272.9*	230.1	169.9	147.7	141.5	109.4	153.5*
4	233.4	191.1	263.1	241.7	170.4	252.8*	238.3*	158.2	144.7	158.2*	111.5	167.3
5	248.7	193.6*	254.1	260.0	165.5	245.2	245.4*	159.9*	148.7	156.6*	114.1	180.9
6	263.2*	200.3	244.6	262.1	166.8	245.2	230.0*	165.2	153.0	149.6*	121.3	201.2
7	262.5*	204.1*	241.4	275.6*	166.9*	239.9	228.3	164.0*	151.0	158.6*	128.2*	219.6
8	266.3*	200.7*	234.7*	287.8	156.9	245.1*	207.1*	162.1*	150.8	167.3	150.3*	217.5*
9	256.5	205.4*	232.6	292.4*	164.4	231.7	192.2	167.3*	139.8	177.4	176.6*	212.5
10	247.6	213.4	231.0*	278.7	145.7	213.7	178.9*	177.1*	130.7	196.0*	203.5*	209.5
11	240.8	220.0	217.0	266.7*	136.3	211.1*	178.2	178.7*	132.3	224.2	226.4*	205.0*
12	234.2	236.8*	223.5	254.2*	132.4	204.0*	181.2	177.5*	132.3	238.3*	239.7*	195.2*
13	230.2	256.2	215.9	218.9	127.5	194.9*	185.5	170.9	129.8	240.2	252.6*	182.9*
14	228.7*	275.6	207.4	193.0	130.5	185.3	201.3	157.9	132.2	240.8	269.2*	176.8
15	230.4	287.1	191.2	172.6	136.3	180.3	207.6*	152.2	132.1	235.8	274.0	173.0
16	227.5	302.4	181.2	157.4	146.7	170.5	227.7	148.2	139.0	210.6*	269.4*	161.4
17	218.2*	302.9	172.7	144.2	152.6	162.5	230.4	145.9*	142.2*	206.0*	273.3	165.1
18	216.5*	296.5*	160.8*	136.3*	167.6	165.7	226.8	147.0	146.8	200.7*	247.2*	166.4*
19	210.5*	278.6	157.0	129.7	169.4	170.9*	219.7*	145.1	155.9	207.5	234.7	159.2
20	200.1	257.8*	152.0	133.9	167.0	171.3	217.0	144.2	155.6*	207.1	196.5	144.7
21	191.2	238.2	153.9	142.2	163.3	165.2	212.4	145.2	165.4*	210.7	173.7*	138.6
22	183.0	218.6	152.7	145.9	152.9	163.7	213.7	156.9*	158.8	197.2*	149.5*	138.8
23	183.8	208.2	151.9	153.0	148.0	173.1	202.4	175.2	155.7*	187.3	128.5	141.2
24	182.2	201.1	150.4	156.1*	149.1	185.9*	189.0	181.0	144.8*	168.2	117.8	142.9
25	182.0	186.0	159.1	162.1	169.3*	184.1	189.9	182.6*	145.7	159.1*	108.2	158.5
26	188.8	172.0	178.3*	166.2	182.7*	204.0	192.8*	178.3	158.0	142.3	102.1	166.4
27	202.8	171.2	190.3	176.8	197.2	222.1	195.4*	167.3	171.5*	127.6	97.8	180.4
28	200.9	182.4	206.4*	183.0	234.7	224.0	200.6	161.0*	171.3*	123.1	96.4	181.4
29	204.5	187.5	226.5*	183.6	267.0	.	198.0	155.6	170.9*	111.7	97.5	183.4
30	203.8	201.5	231.6	185.7	284.5	.	194.5*	149.8*	142.8	108.5	112.4	174.5
31	.	207.1	.	182.8	289.1	.	184.1	.	136.7	.	114.4	175.0*
MEAN	221.9	222.8	203.3	201.4	173.4	208.9	208.3	162.9	147.9	177.4	164.8	172.1

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

AUGUST 1982

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	213	17	55	61	119.8	561	252	146	123.4	118	103	82	34	17
2	214	18	68	66	134.2*	589	278	172	138.2*	139	124	83	36	24
3	215	19	68	76	149.0*	592	287	187	153.5*	144	130	93	43	16
4	216	20	81	88	162.6	598		187	167.3	165	139	86	36	19
5	217	21	97	109	175.8				180.9					
6	218	22	128	141	195.5	618	310	219	201.2	191	170	97	42	17
7	219	23	144	163	213.6	598	320	231	219.6	202	188	113	42	18
8	220	24	150	174	211.6*	612	317	236	217.5*	225	185	118	40	18
9	221	25	161	167	206.7	398			212.5			92	34	17
10	222	26	155	160	204.0	591	298	201	209.5	200	187	110	38	15
11	223	27	157	150	199.6*	605	290	194	205.0*	199	186	113	39	28
12	224	1	138	134	190.1*	598	297	198	195.2*	196	192	108	41	21
13	225	2	113	113	178.3*	604	289	190	182.9*	189	170	113	42	19
14	226	3	100	110	172.3	595	290	182	176.8	163	153	102	40	20
15	227	4	100	110	168.6	586	287	183	173.0	166	158	109	47	35
16	228	5	86	92	157.5	589	279	181	161.4	155	146	111	47	24
17	229	6	93	104	161.1	597	285	189	165.1	153	144	107	48	77
18	230	7	105	111	162.3*	592	307	191	166.4*		129	104	44	25
19	231	8	91	94	155.5				159.2					
20	232	9	77	88	141.3	564	282	174	144.7	141	125	105	69	63
21	233	10	79	85	135.5	579	278	169	138.6	141	116	89	39	21
22	234	11	90	84	135.7	578	284	167	138.8	133	117	88	39	18
23	235	12	71	79	138.2	576	289	178	141.2	134	118	93	38	17
24	236	13	79	86	139.8	566	273	173	142.9	131	112	92	45	24
25	237	14	101	107	155.1	574	290	189	158.5	157	122	85	47	45
26	238	15	98	102	163.0	573	294	192	166.4	153	130	95	48	29
27	239	16	104	123	176.7	595	310	218	180.4	179	148	99	57	74
28	240	17	120	139	177.8	590	312	221	181.4	191	143	102	15	51
29	241	18	132	139	179.8	600	303	216	183.4	159	149	102	44	28
30	242	19	134	141	171.2	596	304	199	174.5	159	151	107	45	23
31	243	20	109	115	171.7*	570	298	204	175.0*	154	155	115	44	26
MEAN			105.9	113.3	167.9	582	293	192	172.1	164	146	100	45	29

*Adjusted for burst.

NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

Date	SUNSPOT NUMBERS: Rz or R_I Monthly Mean	Rz or R_I Smoothed	Ra Monthly Mean	Ra Smoothed	Rs Monthly Mean	Rs Smoothed	2800 MHz FLUX Adjusted to 1 AU Sa Monthly Mean	Sa Smoothed
Sep 79	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153	136.0	144	144.1	151	190.8	197
Aug	135.4	150	133.0	144	121.9	150	170.3	196
Sep	155.0	150	150.0	146	138.8	152	185.9	198
Oct	164.7	150	160.8	149	157.1	154	202.9	200
Nov	147.9	148	149.9	149	168.5	153	213.4	199
Dec	174.4	143	167.5	145	174.3	150	218.8	196
Jan 81	114.0	140	115.4	144	120.5	149	169.0	195
Feb	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140	154.3	146	152.1	157	198.2	203
Aug	158.7	141	170.4	147	182.1	158	226.0	203
Sep	167.3	143	174.5	148	177.7	158	221.9	204
Oct	162.4	142*	157.0	146	178.6	156	222.8	202
Nov	137.5	139*	138.8	142	157.6	151	203.3	197
Dec	150.1	138*	145.0	140	155.5	149	201.4	195
Jan 82	111.2	137*	110.4	139	124.2	148	173.4	195
Feb	163.6	133	161.0	135	163.6	144	208.9	191
Mar	153.8	130(± 3)*	155.5	132	163.0	141	208.3	---
Apr	122.5†	127(± 6)*	121.9	128	113.9	137	162.9	---
May	81.4†	123(± 9)*	82.6	124	97.7	133	147.9	---
Jun	110.4†	118(±11)*	113.5	120	129.6	128	177.4	---
Jul	102.6†	113(±12)*	113.3	115	116.0	122	164.8	---
Aug	105.9†	107(±11)*	---	109	123.9	116	172.1	---
Sep	---	102(±10)*	---	103	---	110	---	---
Oct	---	95(± 9)*	---	96	---	102	---	---
Nov	---	91(± 9)*	---	92	---	97	---	---
Dec	---	87(±10)*	---	88	---	93	---	---
Jan 83	---	83(±10)*	---	84	---	88	---	---
Feb	---	80(±11)*	---	81	---	85	---	---

*An asterisk denotes either a value of the observed 12-month running mean or a predicted 12-month average that is based on preliminary observations of the International relative sunspot number (R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces Rz as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	130 (3)	127 (6)	123 (9)	118 (11)	113 (12)	107 (11)	102 (10)	95 (9)	91 (9)	87 (10)
1983	83 (10)	80 (11)	79 (11)	77 (12)	74 (13)	72 (15)	71 (16)	70 (18)	69 (20)	68 (22)	68 (22)	68 (22)
1984	66 (23)	64 (23)	59 (24)	55 (26)	53 (27)	52 (28)	51 (29)	49 (29)	47 (29)	45 (28)	43 (27)	40 (27)
1985	39 (27)	38 (26)	37 (25)	37 (25)	36 (25)	34 (24)	32 (23)	31 (22)	31 (21)	30 (22)	29 (23)	29 (23)
1986	28 (24)	27 (24)	26 (23)	25 (22)	23 (22)	21 (21)	19 (20)	18 (19)	17 (18)	16 (17)	16 (15)	16 (14)
1987	15 (12)	15 (12)	15 (12)	16 (13)	17 (14)	18 (15)	20 (16)					

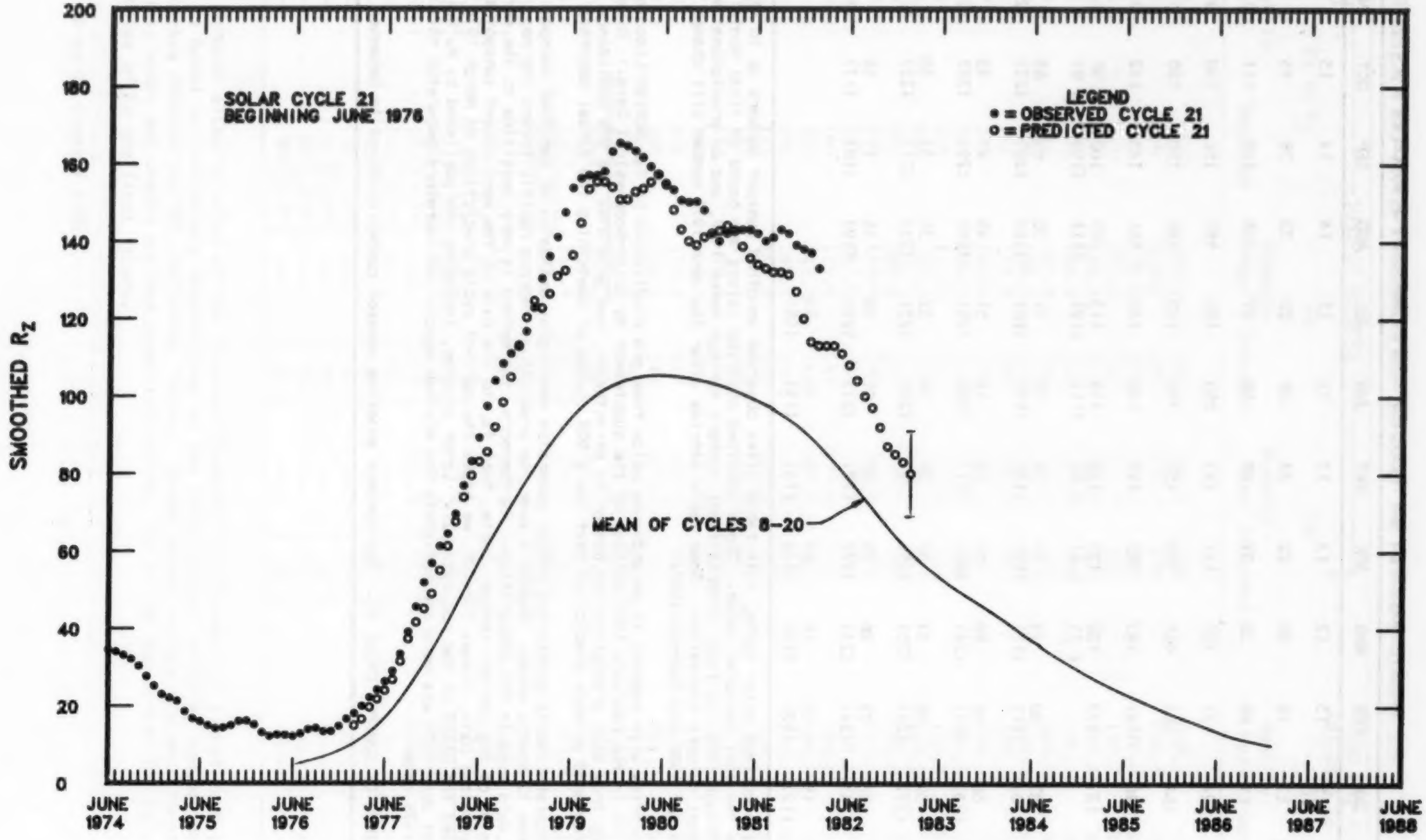
For the current solar cycle, this table gives observed smoothed sunspot numbers up to the one calculated from the last measured value. These smoothed observed values are based on final monthly mean Zurich numbers through 1980, on final International numbers through March 1982, and on provisional monthly mean International numbers thereafter. Some table entries after the June 1976 number will change slightly when final data for 1982 are incorporated.

The entries with numbers in parentheses below them are predictions by the McNish-Lincoln method. (See page 10 in the February 1982 edition of the supplement to Solar-Geophysical Data.) By adding to and subtracting from each prediction the number in parentheses, one generates the 90% confidence interval--an interval centered on each prediction that has a 90% chance of containing the actual smoothed value.

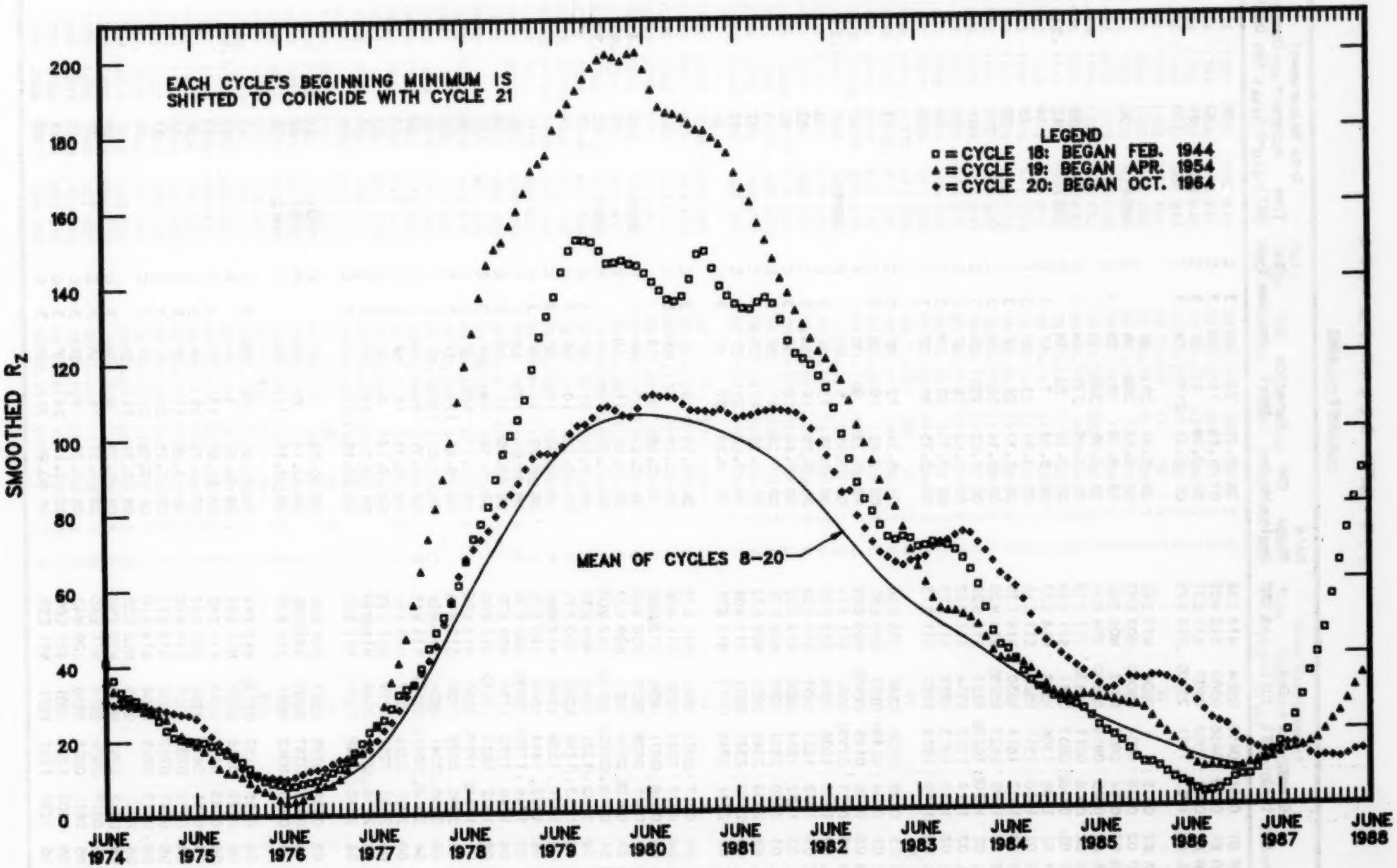
The McNish-Lincoln prediction method generates meaningful estimates of smoothed sunspot numbers for no more than 12 months ahead. Beyond a year the predictions regress rapidly toward the mean of all 13 cycles of data used in the computation. Furthermore, the method is very sensitive to the date defined as the beginning of the current sunspot cycle, that is, to the date of the most recent sunspot minimum. In Solar-Geophysical Data, issues 390-401, we based the current cycle predictions on March 1976 as the end of cycle 20 and the onset of the new cycle 21. Later studies, including one published by M. Waldmeier, showed that June 1976 was more appropriately the minimum epoch. We therefore generated this table using the June 1976 date.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	0451	0456	0514	N14	E54		08	5.29	23	SN	3	C		74		FH 3830
LEAR	01	0455	0456	0508	S12	W07		07	31.68	13	SN	3	C		60		F 3832
LEAR	01	0501	0502	0509	S11	E37		08	3.99	8	SF	3	C		21		F 3829
HOLL	01	1923	1951	2300D	N14	E45		08	5.21	217D	1N	3	C		170		F 3830
ISTA	02	0735		0800	N17	E42		08	5.51	25	SF						B
WEND	02	0738	0804	0806D	N07	E87		08	8.84	28D	1N		C	0804	50		A
LEAR	02	0754	0802	0812	N09	E86		08	8.79	18	SN	3	C				F
ISTA	02	0805	0819	0835D	S09	E21		08	3.91	30D	1B						BU
LEAR	02	0806	0811	0843D	S11	E18		08	3.69	37D	SN	3	C		132		F 3829
PURP	02	0836E	0837	0841	S11	E19		08	3.79	5D	SN		P	0837	42	.5	
RAMY	02	1306	1306	1313	N14	E37		08	5.34	7	SF	3	C		34		3830
RAMY	02	1506	1511	1529	S11	E16		08	3.83	23	SF	3	C		35		3829
RAMY	02	1602	1614	1630	N14	E35		08	5.32	28	SF	3	C		29		3830
RAMY	02	1609	1623	1625D	S14	W20		08	1.16	16D	2B	3	C		795		UF 3832
HOLL	02	1620E	1622U	1733	S13	W22		08	1.02	73D	2B	3	C		621		UE 3832
HOLL	02	1714	1717	1734	S11	E12		08	3.62	20	SF	3	C		35		F 3829
HOLL	02	1759	1807	1932	S11	E13		08	3.73	93	SN	3	C		90		K 3829
HOLL	02	1759	1824	1932	S11	E13		08	3.73	93	SB	3	C		99		FEK 3829
PALE	03	0128	0138	0140	N16	E30		08	5.34	12	SF	3	C		97		3830
PALE	03	0134	0146U	0153	N08	E90		08	9.82	19	SB	3	C				
YUNN	03	0136	0145	0145D	N06	E89		08	9.73	9D	1B		P		47		D
YUNN	03	0255	0255U	0300	S11	E11		08	3.95	5	SN		P	0255	141	1.5	
HOLL	03	1803	1806	1816	S13	E00		08	3.75	13	SF	3	C		36		F 3829
PALE	03	1832	1832	1851	N15	E20		08	5.29	19	SN	3	C		63		F 3830
HOLL	03	1832	1834	1850	N14	E22		08	5.44	18	SF	3	C		63		F 3830
HOLL	03	2330	2332	0011	N08	E72		08	9.38	41	SF	3	C		16		K 3837
HOLL	03	2330	2346	0011	N08	E72		08	9.38	41	SN	3	C		27		K 3837
HOLL	03	2340	2341	0001	S11	W04		08	3.68	21	SF	3	C		67		3829
PALE	03	2344	2346	0011	N11	E71		08	9.33	27	SF	3	C		28		3837
PALE	04	0017	0021	0046	N11	E74		08	9.58	29	SF	3	C		14		3837
PALE	04	0223	0223	0230	S11	W06		08	3.65	7	SN	3	C		43		3829
ISTA	04	0606	0631	0636	S12	W05		08	3.88	30	1B						B
BUCA	04	0625	0628	0635	S10	W08		08	3.67	10	SN		C	0628	129	1.4	
YUNN	04	0910E	0916	0921	N09	E37		08	7.16	11D	SN		P		47	.6	D
YUNN	04	0916	0920U	0922D	S12	W08		08	3.78	6D	SB		P	0920	47	.5	
RAMY	04	1233	1301	1324	N09	E35		08	7.15	51	SF	3	C		77		3838
RAMY	04	1253	1256	1303	N10	E75		08	10.18	10	SF	3	C		21		3837
HOLL	04	1321	1329	1340	N13	E84		08	10.90	19	SF	3	C				3837
RAMY	04	1437	1444	1449	N10	E75		08	10.25	12	SF	3	C		33		3837
PALE	04	1748	1751U	1800D	N09	E70		08	10.00	12D	SN	1	C		20		3837
HOLL	04	1748	1753	1758	N09	E70		08	10.00	10	SN	3	C		30		3837
RAMY	04	1802	1837	1931D	N17	E08		08	5.36	89D	SF	3	C		115		3830
HOLL	04	1934E	1934U	2030	N17	E06		08	5.27	56D	SF	3	C		50		3830
HOLL	04	2006	2020	2206	S12	W16		08	3.63	120	SF	3	C		123		K 3829
HOLL	04	2006	2041	2206	S12	W16		08	3.63	120	SF	3	C		33		K 3829
PALE	04	2014E	2051U	2113D	S13	W15		08	3.71	59D	SN	2	C		60		F 3829
HOLL	04	2021	2021	2037	N09	E65		08	9.73	16	SF	3	C		23		3837
PALE	04	2252	2252	2259	N11	E29		08	7.14	7	SF	3	C		42		3838
PALE	04	2254	2301	2318	N11	E57		08	9.25	24	SN	3	C		72		3837
PALE	04	2340	2348	0025	N11	E69		08	10.18	45	SN	3	C		100		F 3837
PEKG	05	0352	0355	0357	N09	E69		08	10.34	5	SF		P	0355	34		D
PEKG	05	0352	0357	0400	N23	E90		08	12.10	8	SN		P	0357	42		D
MONT	05	0940	0942	0951	S10	W30		08	3.15	11	SN		C	0942	150		DH
PALE	06	0155	0157	0213D	N12	E64		08	10.91	18D	SN	3	C		22		3839
YUNN	06	0227	0228	0230	N11	E64		08	10.92	3	SF		P		47	1.1	
LEAR	06	0423	0425U	0436	N11	E62		08	10.85	13	SN	2	C		23		3837
LEAR	06	0451	0456	0506	N07	E47		08	9.72	15	SF	3	C		36		F 3837
LEAR	06	0652	0703	0707	S10	W40		08	3.28	15	SF	3	C		23		3829
LEAR	06	0741	0749	0806	N10	E11		08	7.15	25	SF	3	C		23		3838
LEAR	06	0743	0743	0804	S14	E10		08	7.08	21	SF	3	C		20		F 3840
ISTA	06	0751		0802	N10	E53		08	10.31	11	SN						U
LEAR	06	0752	0753	0800	N10	E54		08	10.39	8	SN	3	C		28		3837
LEAR	06	0829	0829	0833	N11	E40		08	9.37	4	SN	3	C		30		F 3837
LEAR	06	0831	0833	0836	S09	W42		08	3.20	5	SN	3	C		26		3829
RAMY	06	1207	1225	1231	S15	E09		08	7.19	24	SF	3	C		28		3840
RAMY	06	1220	1237	1251	N11	E59		08	10.96	31	SN	3	C		65		3839

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	06	1334	1337	1354	S10	W45		08	3.18	20	SB	3	C		142		K 3829
RAMY	06	1334	1345	1354	S10	W45		08	3.18	20	SB	3	C		52		K 3829
HOLL	06	1336	1336	1353	S08	W44		08	3.27	17	SB	3	C		135		K 3829
HOLL	06	1336	1345	1353	S08	W44		08	3.27	17	SB	3	C		51		EHK 3829
RAMY	06	1341	1345	1402	N12	E60		08	11.09	21	SF	3	C		32		K 3839
RAMY	06	1341	1355	1402	N12	E60		08	11.09	21	SN	3	C		33		K 3839
RAMY	06	1422	1425	1429	N21	E69		08	11.89	7	SN	3	C		39		3839
HOLL	06	1422	1424	1429	N19	E68		08	11.79	7	SN	3	C		29		F 3839
HOLL	06	1445E	1508	1531	N13	E62		08	11.30	46D	SF	3	C		47		3839
HOLL	06	1505	1506	1514	N08	E42		08	9.78	9	SN	3	C		21		3837
HOLL	06	1632	1642	1717	S08	W46		08	3.24	45	SN	3	C		66		H 3829
RAMY	06	1640	1643	1712	S10	W47		08	3.16	32	SN	3	C		52		3829
RAMY	06	1643	1650	1706	N12	E59		08	11.14	23	SB	3	C		41		3839
HOLL	06	1643	1649	1708	N10	E58		08	11.06	25	SN	3	C		32		F 3839
HOLL	06	1830	1840	1851	S08	W48		08	3.17	21	SN	3	C		15		3829
HOLL	06	1849	1908	1912	N10	E53		08	10.77	23	SF	3	C		26		3839
HOLL	06	1916	1917	2006	N10	E55		08	10.94	50	SN	3	C		77		F 3839
HOLL	06	1925	1928	1928	N09	E02		08	6.96	3	SF	3	C		32		F 3838
HOLL	06	1947	1958	2036	N11	E06		08	7.28	49	SN	3	C		54		F 3838
RAMY	06	2009	2013	2123D	N12	E56		08	11.06	74D	SN	3	C		47		K 3839
RAMY	06	2009	2040	2123D	N12	E56		08	11.06	74D	SB	3	C		42		K 3839
RAMY	06	2010	2010	2016	S11	W46		08	3.38	6	SF	3	C		17		3829
HOLL	06	2010E	2014U	2057D	N10	E57		08	11.13	47D	SN	3	C		36		F 3839
HOLL	06	2013	2013	2018	S09	W48		08	3.24	5	SF	3	C		18		F 3829
HOLL	06	2208	2210	2242	S14	E03		08	7.15	34	SF	3	C		34		F 3840
HOLL	06	2232	2233	2241	S08	W50		08	3.19	9	SN	3	C		59		F 3829
HOLL	06	2243	2326U	0014D	S15	E04		08	7.25	91D	SF	3	C		64		F 3840
HOLL	06	2253	2329	2329D	S08	W50		08	3.20	36D	1B	3	C		196		3829
HOLL	06	2319	2332	2351	S08	W50		08	3.22	32	1B	3	C		223		EH 3829
LEAR	06	2344E	2344U	2352	S09	W50		08	3.23	8D	SN	3	C		32		3829
LEAR	07	0121	0123	0154	N10	E55		08	11.19	33	SN	3	C		31		3839
LEAR	07	0248	0251	0425	N14	E53		08	11.13	97	SN	3	C		41		K 3839
LEAR	07	0248	0347	0425	N14	E53		08	11.13	97	1N	3	C		175		F K 3839
YUNN	07	0250E	0250U	0252	S14	W01		08	7.04	2D	SN		P	0250	94	1.0	F
LEAR	07	0252	0252	0305	N08	E46		08	10.57	13	SF	3	C		22		3837
LEAR	07	0256	0304	0327	S13	W45		08	3.72	31	SN	3	C		51		F 3829
YUNN	07	0258	0306	0314D	S13	W46		08	3.65	16D	SN		P		63	1.0	
YUNN	07	0302	0306	0314D	N11	E52		08	11.04	12D	SN		P		63	1.0	E
YUNN	07	0352E	0352U	0400	N15	E52		08	11.10	8D	SN		P		63	1.1	E
YUNN	07	0352E	0352U	0400	S09	W48		08	3.56	8D	SN		P	0352	47	.8	E
YUNN	07	0408	0411	0419	N07	W03		08	6.95	11	SB		C		31	.3	D
LEAR	07	0420	0422	0431	N08	W03		08	6.96	11	SB	3	C		73		FE 3838
ISTA	07	0617		0633	N09	W06		08	6.81	16	SF						D
ISTA	07	0632		0640	N11	E41		08	10.36	8	1N						U
LEAR	07	0632	0634	0638	N10	E41		08	10.36	6	SN	3	C		31		3837
ISTA	07	0641		0650	S14	W01		08	7.20	9	2N						F
BUCA	07	0643	0644	0649	S14	W04		08	6.98	6	SN		C	0644	86	1.0	D
YUNN	07	0644	0648	0652	S15	W04		08	6.98	8	SN		P		94	1.0	
LEAR	07	0645	0645	0650	S15	W02		08	7.13	5	SN	3	C		56		F 3840
ISTA	07	0721		0724	N11	E39		08	10.24	3	SN						E
BUCA	07	0734	0738	0802	S15	E12		08	8.22	28	SF		C	0738	161	1.8	E
ISTA	07	0736		0749	S13	E12		08	8.22	13	1N						U
LEAR	07	0736	0753	0802	S15	E12		08	8.23	26	SF	3	C		48		F 3836
YUNN	07	0754E	0755	0800	S18	E13		08	8.32	6D	SN		P		63	.7	E
BUCA	07	0803	0805	0810	N10	E39		08	10.27	7	SN		C	0805	129	1.7	E
LEAR	07	0804	0809	0827	N10	E40		08	10.34	23	SB	3	C		81		FE 3837
YUNN	07	0831	0839	0855	S10	W51		08	3.52	24	1N		P		220	3.8	F
HOLL	07	1304E	1322U	1335	N14	E47		08	11.10	31D	SN	3	C		36		F 3839
HOLL	07	1307	1320	1333	S09	W52		08	3.64	26	SF	3	C		19		3829
HOLL	07	1331	1333	1358	N10	E29		08	9.74	27	SF	3	C		30		F 3837
HOLL	07	1456	1458	1506	S10	W52		08	3.71	10	SF	3	C		20		F 3829
HOLL	07	1539	1631	1634	S09	W55		08	3.52	55	SF	3	C		35		F 3829
HOLL	07	1546	1547	1614	N09	E29		08	9.83	28	SF	3	C		45		F 3837
HOLL	07	1721	1726	1742	S11	W53		08	3.73	21	SF	3	C		28		F 3829
HOLL	07	1759	1805	1819	N18	E64		08	12.63	20	SF	3	C		21		F 3842
HOLL	07	1802	1804	1814	N09	E34		08	10.30	12	SF	3	C		29		F 3839
HOLL	07	1829	1830	1840	N11	W07		08	7.24	11	SF	3	C		47		3838
HOLL	07	1851	1852	1913	N14	E45		08	11.19	22	SF	3	C		33		3839
HOLL	07	1922	2002	2101	N08	E40		08	10.81	99	SN	3	C		151		F 3839
HOLL	07	1939	2006	2027	S09	W62		08	3.16	48	SF	3	C		29		3829

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
HOLL	07	2006	2007	2015	N12	W16		08	6.63	9	SF	3	C		37		3838
HOLL	07	2105	2110	2114	S08	E50		08	11.63	9	SF	3	C		19		3844
LEAR	07	2340E	2340U		N14	E41		08	11.09	D	SF	3	C		21		3839
LEAR	08	0006	0007	0032	N09	E26		08	9.96	26	SF	3	C		49		F 3837
LEAR	08	0018	0020	0037	S09	W64		08	3.21	19	SN	3	C		17		F 3829
LEAR	08	0054	0055	0101	S09	W66		08	3.08	7	SB	3	C		20		EH 3829
YUNN	08	0058E	0103	0111D	S10	W67		08	3.00	13D	SN		P		63		
LEAR	08	0204	0205	0218	S09	W65		08	3.20	14	1B	3	C		135		FE 3829
YUNN	08	0210E	0210U	0216D	S09	W66		08	3.13	6D	1B		P	0210	173		
PURP	08	0211E	0212	0221	S11	W66		08	3.12	10D	1B		C	0212	140		H
LEAR	08	0244	0252	0306	S09	E72		08	13.52	22	SF	3	C		13		3843
LEAR	08	0245	0248	0258	N10	E30		08	10.37	13	SB	3	C		92		FE 3837
LEAR	08	0339	0339	0344	N12	E38		08	11.02	5	SF	3	C		25		3839
LEAR	08	0435	0446	0450	S09	W69		08	3.01	15	SN	3	C		22		H 3829
PEKG	08	0445	0455	0614	N14	E38		08	11.07	89	SF		P	0455	34	.4	EK
PEKG	08	0445	0523	0614	N14	E38		08	11.07	89	SN		P	0523	50	.6	E
YUNN	08	0447	0503U	0503D	N15	E40		08	11.23	16D	SN		P	0503	31	.4	D
YUNN	08	0459E	0500U	0503D	S09	W62		08	3.55	4D	SB		P	0500	31	.7	D
PURP	08	0509	0510	0510D	N15	E41		08	11.32	1D	SN		V	0510	84	1.1	
PEKG	08	0515	0523	0534	N11	E31		08	10.55	19	SF		P	0523	21	.2	D
LEAR	08	0519	0520	0523	N10	W20		08	6.72	4	SF	3	C		42		3838
PEKG	08	0541	0543	0545	N13	E33		08	10.73	4	SF		C	0543	88	1.1	E
ISTA	08	0705		0735	N11	E40		08	11.31	30	1F						U
HOLL	08	1347	1348	1404	N15	E77		08	14.41	17	SN	3	C				3845
HOLL	08	1349	1350	1411	N11	E20		08	10.08	22	SN	3	C		47		3837
HOLL	08	1428	1428	1432	N12	E35		08	11.24	4	SF	3	C		19		3839
HOLL	08	1433	1435	1451	S11	E67		08	13.65	18	SF	3	C		14		3843
HOLL	08	1546	1612	1650	N14	E37		08	11.46	64	1B	3	C		238		E 3839
HOLL	08	1603	1651U	1805D	N14	E71		08	14.04	122D	2B	3	C		206		E 3845
HOLL	08	1645	1650U	1718	S10	W66		08	3.74	33	SF	3	C		13		F 3829
HOLL	08	1647	1650U	1848	N08	E15		08	9.82	121	SF	3	C		66		F 3837
HOLL	08	1804E	1804U	1823	N13	E35		08	11.40	19D	SN	3	C		59		F 3839
HOLL	08	1841	1844	1917	S10	W67		08	3.74	36	SN	3	C		75		F 3829
HOLL	08	1842	1854	2024	S12	W05		08	8.40	102	1N	3	C		237		U 3841
PALE	08	1854E	1857U	1930D	S12	W04		08	8.49	36D	1B	2	C		290		UF 3841
HOLL	08	2011	2012	2024	S10	W68		08	3.73	13	SN	3	C		29		3829
HOLL	08	2209	2210	2218	N11	E30		08	11.18	9	SN	3	C		136		3839
HOLL	08	2328	2329	2351	S14	W29		08	6.78	23	SN	3	C		139		F 3840
HOLL	09	0041	0044	0120D	N16	E29		08	11.23	39D	SN	3	C		106		3839
LEAR	09	0042	0044	0105	N16	E29		08	11.23	23	SF	3	C		73		F 3839
LEAR	09	0111	0115	0119	N11	E28		08	11.16	8	SF	3	C		26		F 3839
LEAR	09	0152	0154	0232	N10	E12		08	9.98	40	SN	3	C		192		K 3837
LEAR	09	0152	0205	0232	N10	E12		08	9.98	40	1B	3	C		238		FEK 3837
PURP	09	0157	0207	0225	N09	E10		08	9.83	28	SN		C	0207	84	.9	
LEAR	09	0158	0208	0255	N14	E28		08	11.20	57	SB	3	C		93		FE 3839
PURP	09	0207	0220	0250	N15	E27		08	11.13	43	SN		C	0220	70	.8	
PEKG	09	0222E	0222	0228	N15	E27		08	11.14	6D	SF		P	0222	92	1.0	E
LEAR	09	0303	0306	0326	S11	W71		08	3.78	23	SF	3	C				F 3829
LEAR	09	0637	0654	0808	N15	E23		08	11.02	91	2B	3	C		518		FE 3839
BUCA	09	0645	0648	0742	N15	E24		08	11.10	57	1N		C	0648	430	4.9	E
ISTA	09	0650E		0709	N15	E21		08	10.88	19D	1N						E
LEAR	09	0651	0653	0657	S19	W26		08	7.30	6	SF	3	C		29		3840
PURP	09	0652	0655	0659D	N15	E25		08	11.18	7D	2B		P	0655	503	5.8	
HOLL	09	1514	1516	1536	S11	W15		08	8.51	22	SF	3	C		55		F 3841
HOLL	09	1534	1535	1559	N16	E23		08	11.39	25	SN	3	C		53		F 3839
HOLL	09	1544	1547	1604	N10	E05		08	10.03	20	SF	3	C		39		3837
HOLL	09	1641	1644	1742D	S08	E51		08	13.52	61D	SF	3	C		43		3843
HOLL	09	1746	1746	1747D	N20	W15		08	8.59	1D	1F	3	C		402		F
HOLL	09	1752	1823	1841	N13	E61		08	14.35	49	SN	3	C		97		F 3845
PALE	09	2058	2100	2118	S08	E24		08	11.67	20	SN	3	C		43		3844
HOLL	09	2104	2105	2124	S08	E23		08	11.60	20	SF	3	C		26		3844
HOLL	09	2122	2123	2128	S10	W88		08	3.27	6	SF	3	C				3829
PALE	09	2127	2129	2149	S12	W19		08	8.46	22	SN	3	C		72		3841
PALE	09	2127	2145	2248	N12	E03		08	10.12	81	SB	3	C		153		F 3837
HOLL	09	2127	2129	2151	S12	W19		08	8.46	24	SN	3	C		62		F 3841
PALE	09	2310	2312	2323	N10	W00		08	9.97	13	SB	3	C		92		3837
PALE	10	0010	0012	0022	N09	W01		08	9.93	12	SB	3	C		116		3837
PALE	10	0159	0205	0254D	S08	E42		08	13.23	55D	SN	3	C		48		K 3843

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
PALE	10	0159	0220	0254D	S08	E42		08	13.23	55D	1B	3	C		279		K 3843
PURP	10	0209	0219U	0246	S07	E44		08	13.39	37	1N		C	0219	161	2.4	
LEAR	10	0212E	0230U	0312	S06	E45		08	13.46	60D	SN	3	C		145		F 3843
PALE	10	0224	0225	0229	N14	E50		08	13.88	5	SF	3	C		16		3845
LEAR	10	0438	0518	0619	N10	W05		08	9.82	101	1B	2	C		282		K 3837
LEAR	10	0438	0530U	0619	N10	W05		08	9.82	101	1B	2	C		346		FEK 3837
PURP	10	0450	0533	0604D	N11	W03		08	9.98	74D	2N		C	0533	517	5.4	
PEKG	10	0502	0554E	0611	N11	W04		08	9.91	69	1N		P	0554	218	2.3	F
YUNN	10	0518E	0535	0549D	N09	W03		08	10.00	31D	1B		P		204	2.1	F
ISTA	10	0548E		0610	N09	W05		08	9.87	22D	N						E
BUCA	10	0600E		0625	N10	W04		08	9.95	25D	SF		C	0602	183	1.9	B
ISTA	10	0724		0740	N09	W05		08	9.93	16	SN						E
LEAR	10	0724	0725U	0755	N10	W05		08	9.93	31	SN	2	C		129		F 3837
PEKG	10	0725E	0726	0752	N10	W05		08	9.93	27D	SF		P	0726	97	1.0	E
BUCA	10	0725	0728	0751	N10	W05		08	9.93	26	SN		C	0728	183	1.9	
ISTA	10	0738		0742	N05	W15		08	9.20	4	SF						D
MONT	10	1027	1029	1040	N10	W05		08	10.06	13	SB		C	1029	180		E
RAMY	10	1234	1235	1240	N12	E49		08	14.22	6	SF	3	C		27		3845
HOLL	10	1325E	1325U	1424D	N09	W09		08	9.88	59D	SN	3	C		140		F 3837
HOLL	10	1448E	1449U	1454	N15	E46		08	14.10	6D	SN	3	C		93		3845
RAMY	10	1500	1501	1621	N10	W12		08	9.72	81	SB	3	C		104		K 3837
RAMY	10	1500	1541	1621	N10	W12		08	9.72	81	1B	3	C		431		FEK 3837
RAMY	10	1513	1529	1540	N18	E50		08	14.44	27	SF	3	C		37		3845
HOLL	10	1804	1818	1818D	N10	W12		08	9.85	14D	1N	3	C		205		3837
HOLL	10	2007	2011	2027	S08	E11		08	11.66	20	SF	3	C		38		F 3844
HOLL	10	2019	2025	2137	N08	W16		08	9.65	78	SF	2	C		25		K 3837
HOLL	10	2019	2108	2137	N08	W16		08	9.65	78	SF	2	C		162		F K 3837
HOLL	10	2057E	2057U	2103	N14	E07		08	11.40	6D	SF	2	C		20		3839
HOLL	10	2105	2110	2129	S18	W50		08	7.07	24	SF	2	C		34		3847
HOLL	10	2128	2132	2150	S08	E10		08	11.64	22	SF	3	C		35		3844
HOLL	10	2220	2220	2229	S06	E31		08	13.25	9	SF	3	C		27		3843
HOLL	10	2253	2255	2313	N10	W15		08	9.83	20	SF	3	C		58		F 3837
HOLL	10	2255	2307	2346	N09	W04		08	10.65	51	SN	3	C		107		F 3839
HOLL	10	2331	2333	2337	S08	E07		08	11.51	6	SF	3	C		36		F 3844
HOLL	10	2351	2357	0034	S07	E31		08	13.32	43	SN	3	C		108		F 3843
LEAR	10	2352	2354	0029	S07	E32		08	13.39	37	SF	3	C		68		F 3843
HOLL	11	0022	0023	0103	N10	W15		08	9.89	41	SF	3	C		63		F 3837
LEAR	11	0451	0501	0516	N12	E01		08	11.28	25	SF	3	C		44		3839
LEAR	11	0520	0541	0603	N13	W00		08	11.22	43	SF	3	C		95		F 3839
BUCA	11	0616	0617	0705	N11	W16		08	10.06	49	SN		C	0617	107	1.1	E
LEAR	11	0617	0620	0634	N10	W14		08	10.21	17	SN	3	C		71		F 3837
PURP	11	0620E	0621	0632	N10	W15		08	10.14	12D	SN		P	0621	60	.6	E
LEAR	11	0645	0646	0655	N14	W05		08	10.90	10	SF	3	C		34		F 3839
BUCA	11	0740	0744	0802	N15	E40		08	14.35	22	1F		C	0744	215	2.9	
LEAR	11	0743	0746	0816	N15	E41		08	14.43	33	SF	3	C		176		F 3845
WEND	11	0743	0746	0801	N16	E42		08	14.51	18	1N		C	0746	180	2.6	
ISTA	11	0745		0755	N16	E41		08	14.43	10	1N						E
MONT	11	0745	0747	0758	N15	E42		08	14.50	13	SN		C	0747	200		
WEND	11	0813	0816	0828	N27	E22		08	13.06	15	SF		C	0816	56	.7	
YUNN	11	0825	0830	0842	S08	E02		08	11.50	17	SN		C		31	.3	D
WEND	11	0828	0831	0851	S08	E03		08	11.58	23	SF		C	0831	88	.9	
LEAR	11	0844	0848	0922D	N13	W06		08	10.91	38D	1B	3	C		234		FE 3839
YUNN	11	0845	0848	0853	N13	W06		08	10.91	8	SN		C		47	.5	
LEAR	11	0846	0849	0904	N15	E34		08	13.94	18	SN	3	C		34		F 3845
WEND	11	0846	0851	0904	N13	W08		08	10.76	18	SN		C	0851	100	1.1	
LEAR	11	0903	0903	0908	S20	W56		08	7.09	5	SF	3	C		19		3847
RAMY	11	1255	1306	1319	N13	W11		08	10.71	24	SF	3	C		29		3839
RAMY	11	1302	1317	1358	S18	W56		08	7.28	56	SB	3	C		38		3847
HOLL	11	1318E	1318U	1336	S21	W58		08	7.10	18D	SN	2	C		30		3847
HOLL	11	1323E	1328	1356	N13	W08		08	10.95	33D	SN	3	C		53		F 3839
RAMY	11	1331	1331	1339	N13	W09		08	10.88	8	SN	3	C		21		3839
HOLL	11	1439	1443	1451	N10	W13		08	10.63	12	SF	3	C		53		3839
RAMY	11	1711	1736	1848	N13	W13		08	10.73	97	1F	3	C		419		FE 3839
HOLL	11	1729	1741U	1850D	N13	W11		08	10.90	81D	SF	3	C		135		F 3839
HOLL	11	1925	1926	1954	N11	W63		08	7.07	29	SF	3	C		31		3838
HOLL	11	2120	2121	2136	N10	W34		08	9.33	16	SF	3	C		35		H 3837
HOLL	11	2141E	2141U	2157	S15	W48		08	8.27	16D	SF	3	C		21		3841
HOLL	11	2154	2157	2207	S17	W66		08	6.89	13	SF	3	C		45		3840
HOLL	11	2154E	2154U	2201	N10	W31		08	9.58	7D	SN	3	C		56		3837
LEAR	12	0140	0142	0150	N12	W19		08	10.64	10	SN	3	C		114		F 3839

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	12	0256	0303	0320	S16	W51		08	8.25	24	SF	3	C		19		F 3841
LEAR	12	0257	0304	0328	N13	W13		08	11.14	31	SN	3	C		119		3839
LEAR	12	0351	0352	0415	S21	W66		08	7.10	24	1N	3	C		114		F 3847
LEAR	12	0425	0425	0430	N13	W17		08	10.90	5	SF	3	C		34		F 3839
LEAR	12	0438	0442	0448	N09	W69		08	7.01	10	SF	3	C		24		F 3838
LEAR	12	0442	0446	0452	N08	W38		08	9.34	10	SF	3	C		70		F 3837
LEAR	12	0502	0503	0524	N14	W10		08	11.45	22	SF	3	C		46		F 3839
LEAR	12	0517	0519	0525	N10	W35		08	9.59	8	SF	3	C		41		3837
LEAR	12	0536	0536	0611	N14	W14		08	11.17	35	SF	3	C		137		F 3839
LEAR	12	0538	0551	0553	S20	W67		08	7.11	15	SF	3	C		14		3847
LEAR	12	0604	0604	0612	N11	W39		08	9.32	8	SF	3	C		44		3837
ISTA	12	0702		0734	S13	E48		08	15.92	32	SF						
LEAR	12	0703	0712	0739	S14	E48		08	15.92	36	SF	3	C		48		F 3856
WEND	12	0704	0708	0719	S14	E47		08	15.85	15	SF		C	0708	44	.7	
LEAR	12	0814	0817U	0828	N08	W40		08	9.34	14	SN	3	C		116		F 3837
WEND	12	0815	0818	0824	N10	W40		08	9.34	9	SF		C	0818	44	.6	
LEAR	12	0901	0907	0914	S07	E11		08	13.20	13	SF	3	C		25		F 3843
WEND	12	0944	0952	0959	N15	W14		08	11.34	15	SF		C	0952	100	1.1	E
WEND	12	1036	1042	1057	N16	W14		08	11.38	21	SF		C	1042	125	1.4	E
WEND	12	1050E	1103	1118D	N08	W28		08	10.35	28D	SN		C	1103	106	1.3	
RAMY	12	1427	1431	1457	S20	W70		08	7.24	30	SN	3	C				3847
WEND	12	1629	1647	1706D	N13	W75		08	7.02	37D	1N		C	1647	200		
HOLL	12	1659	1706	1720	S05	E08		08	13.31	21	SF	3	C		40		3843
HOLL	12	1708	1709	1732	N14	W21		08	11.13	24	SN	3	C		38		F 3839
HOLL	12	1744	1744	1817	S10	W12		08	11.84	33	SF	3	C		31		3844
HOLL	12	1753	1757	1803	S12	E41		08	15.84	10	SF	3	C		22		F 3856
HOLL	12	1950E	1958U	2010	N13	W24		08	11.01	20D	SF	3	C		51		F 3839
HOLL	12	2023	2026U	2052	S07	E08		08	13.45	29	SF	3	C		59		F 3843
HOLL	12	2027	2027	2030	S18	W72		08	7.37	3	SF	3	C				3847
HOLL	12	2030E	2039U	2048	S22	E10		08	13.62	18D	SF	3	C		22		F 3855
PALE	12	2246E	2246U	2301	N14	W21		08	11.36	15D	SF	3	C		31		3739
PALE	12	2251E	2255U	2301	S11	E36		08	15.66	10D	SF	3	C		40		3856
LEAR	12	2346	2346	2358	N13	W23		08	11.25	12	SF	3	C		21		F 3839
LEAR	13	0020	0020	0028	S15	W80		08	6.95	8	SF	3	C				3840
LEAR	13	0055	0055	0102	N09	W38		08	10.18	7	SN	3	C		75		F 3837
LEAR	13	0112	0113	0118	N08	W38		08	10.20	6	SF	3	C		25		F 3837
LEAR	13	0136	0142	0202	S12	E36		08	15.78	26	SN	3	C		39		3856
LEAR	13	0359	0401	0433	N11	W32		08	10.76	34	SF	3	C		70		F 3839
LEAR	13	0404	0405	0432	S14	E33		08	15.67	28	SF	3	C		45		3856
LEAR	13	0408	0411	0450	S08	E05		08	13.55	42	SF	3	C		49		3843
LEAR	13	0448	0453	0501	S14	E32		08	15.62	13	SF	3	C		30		3856
┌LEAR	13	0542	0550	0631	S07	E01		08	13.31	49	1B	3	C		283		FE 3843
└YUNN	13	0547E	0547U	0555D	S06	E02		08	13.39	8D	SN		P	0547	47	.5	E
LEAR	13	0558	0609	0620	N11	W49		08	9.56	22	SF	3	C		28		3837
LEAR	13	0626	0626	0638	S13	E32		08	15.68	12	SF	3	C		49		F 3856
LEAR	13	0639	0647	0658	S10	W19		08	11.85	19	SF	3	C		35		F 3844
┌LEAR	13	0738	0742	0809	N08	W41		08	10.24	31	1N	2	C		175		K 3837
├LEAR	13	0738	0749	0809	N08	W41		08	10.24	31	1B	2	C		207		FEK 3837
├WEND	13	0738	0747	0755	N08	W43		08	10.09	17	SN		C	0747	100	1.4	
│ISTA	13	0740		0751	N15	W42		08	10.14	11	SF						
│PURP	13	0741	0842	0853	S13	E32		08	15.74	72	1N		C	0742	168	2.2	
├PURP	13	0741E	0742	0757	N07	W43		08	10.10	16D	SN		C	0742	91	1.3	
│PEKG	13	0746	0748	0750	S13	E31		08	15.66	4	SN		C	0748	126	1.6	E
└PEKG	13	0747E	0748	0755	N09	W41		08	10.25	8D	SN		P	0748	118	1.6	E
LEAR	13	0748	0749	0755	N12	W25		08	11.44	7	SF	2	C		33		3839
┌LEAR	13	0820	0823	0836	S12	E32		08	15.76	16	SN	2	C		68		F 3856
├WEND	13	0821	0825	0846	S12	E32		08	15.76	25	SF		C	0825	81	1.0	
├PEKG	13	0830	0831	0833	S12	E32		08	15.77	3	SN		C	0831	63	.8	E
└YUNN	13	0840E	0840U	0920	S11	E33		08	15.85	40D	SN		P	0840	31	.4	D
┌WEND	13	0850	0859	0936	N17	E13		08	14.36	46	SF		C	0859	19	.2	
├LEAR	13	0851	0852	0920D	N14	E14		08	14.43	29D	SF	2	C		28		F 3845
└PURP	13	0853	0905	0915D	N15	E15		08	14.51	22D	SF		C	0905	49	.5	E
┌LEAR	13	0903	0913	0920D	S13	E29		08	15.57	17D	SF	2	C		37		F 3856
└PURP	13	0905	0909	0915D	S13	E31		08	15.72	10D	SN		C	0909	70	.9	E
HOLL	13	1308E	1325U	1412	S12	E28		08	15.66	64D	SF	3	C		72		3856
RAMY	13	1310	1316	1324	N09	W52		08	9.64	14	SN	3	C		75		3837
RAMY	13	1313	1315	1317	S19	W80		08	7.44	4	SF	3	C				3840
┌RAMY	13	1331	1339	1402	N15	W24		08	11.74	31	1F	3	C		253		3839
└HOLL	13	1331	1336U	1358	N18	W24		08	11.73	27	SF	3	C		179		F 3839
┌RAMY	13	1343	1344	1355	N12	W46		08	10.10	12	SB	3	C		91		3837

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks	
HOLL	13	1346E	1348	1352	N15	W47		08	10.01	6D	SB	3	C		126			3837
HOLL	13	1532	1535	1555	N10	W47		08	10.11	23	SB	3	C		147		E	3837
RAMY	13	1533	1535	1535D	N09	W53		08	9.67	2D	SB	3	C		159		E	3837
HOLL	13	1602	1612	1643	N10	W48		08	10.06	41	SF	3	C		35		F	3837
RAMY	13	1735	1738	1738D	N09	W54		08	9.68	3D	1N	3	C		235			3837
HOLL	13	1737	1740	1841	N12	W53		08	9.74	64	1N	3	C		157		K	3837
HOLL	13	1737	1818	1841	N12	W53		08	9.74	64	SB	3	C		57		FEK	3837
HOLL	13	1748	1751	1819	N15	W34		08	11.17	31	SF	3	C		66		F	3839
PALE	13	1827E	1827U	1836D	N10	W56		08	9.56	9D	SN	3	C		44			3837
HOLL	13	2000	2014	2033	N10	W53		08	9.85	33	1N	3	C		155		F	3837
PALE	13	2012	2015	2021	N08	W48		08	10.24	9	SF	3	C		55			3837
PALE	13	2146	2146	2153D	N10	W53		08	9.92	7D	SF	3	C		24			3837
PALE	13	2216	2216	2233	S07	W31		08	11.60	17	SF	3	C		28			3844
PEKG	13	2301	2306	2313	N13	W59		08	9.50	12	SN		C	2306	76	1.5	E	
PALE	13	2312E	2326U	2334	N11	W60		08	9.45	22D	SN	3	C		25			3837
LEAR	14	0017E	0020	0035	N13	W37		08	11.22	18D	SF	3	C		55		F	3839
LEAR	14	0017E	0019	0040	S06	W11		08	13.19	23D	SF	3	C		69		F	3843
LEAR	14	0042	0042	0048	S11	E24		08	15.84	6	SF	3	C		21		F	3856
LEAR	14	0047	0048	0056	N13	W40		08	11.01	9	SN	3	C		33		F	3839
PALE	14	0132	0136	0145	N14	W36		08	11.34	13	SF	3	C		47			3839
LEAR	14	0143	0149	0200	S05	E79		08	19.98	17	SF	3	C					
LEAR	14	0148	0154	0216	N11	W59		08	9.63	28	SF	3	C		21			3837
LEAR	14	0237	0247	0315	N11	W60		08	9.59	38	1B	3	C		159		FE	3837
PURP	14	0240	0244	0244D	N12	W63		08	9.36	4D	SN		P	0244	35	.8		
YUNN	14	0240	0246	0249D	N12	W60		08	9.59	9D	SB		P		47	1.0		
PALE	14	0245E	0246U	0306	N10	W61		08	9.53	21D	SB	3	C		140		FE	3837
PALE	14	0319	0321	0322	S02	E74		08	19.67	3	SF	3	C					
LEAR	14	0358	0405	0425	N09	W55		08	10.03	27	1B	3	C		275		FE	3837
PALE	14	0359	0406	0414D	N07	W55		08	10.04	15D	1B	3	C		172			3837
YUNN	14	0405E	0405U	0413	N09	W56		08	9.96	8D	SB		P	0405	79	1.4	F	
LEAR	14	0507	0508	0525	N11	W62		08	9.55	18	1B	3	C		280		E	3837
MANI	14	0508E	0508U	0525D	N11	W61		08	9.62	17D	1N		V		220	4.2	F	
PEKG	14	0600E	0601	0610	N12	W47		08	10.71	10D	SF		P	0601	84	1.2	E	
LEAR	14	0601	0603	0624	N11	W46		08	10.79	23	SN	3	C		67		F	3839
PURP	14	0603	0605	0614	N11	W46		08	10.79	11	SF		C	0605	56	.8		
PURP	14	0712	0714	0720	N14	W42		08	11.12	8	SF		C	0714	42	.6		
PEKG	14	0805E	0810	0825	S06	E74		08	19.88	20D	SF		P	0810	76		E	
LEAR	14	0805	0807	0822	S05	E74		08	19.87	17	SN	3	C				F	
LEAR	14	0844	0850	0902	N09	W64		08	9.56	18	SF	3	C		16			3837
PEKG	14	0904	0908	0918	S06	E74		08	19.92	14	SF		C	0908	88		E	
HOLL	14	1421E	1423U	1449	S13	E12		08	15.50	28D	SF	3	C		63		F	3856
RAMY	14	1512	1513	1522	N14	W47		08	11.08	10	SN	3	C		64			3839
HOLL	14	1513	1513	1518	N14	W50		08	10.85	5	SF	3	C		24		F	3839
HOLL	14	1525	1541	1542	S12	E13		08	15.62	17	SN	3	C		24		F	3856
HOLL	14	1551	1552	1603	S06	E67		08	19.68	12	SF	3	C		12		F	3858
HOLL	14	1625	1627	1632	S06	E67		08	19.70	7	SF	3	C		12		F	3858
HOLL	14	1636	1654	1700	S05	E67		08	19.71	24	SF	3	C		18			3858
HOLL	14	1720	1722	1751	S06	E65		08	19.59	31	SN	3	C		60			3858
RAMY	14	1722	1722	1743	S03	E59		08	19.13	21	SN	3	C		34			3858
HOLL	14	1734	1740	1800	S11	E11		08	15.56	26	SF	3	C		41			3856
HOLL	14	1743	1744	1752	N16	W45		08	11.32	9	SF	3	C		28		F	3839
HOLL	14	1803	1803	1823	S11	E11		08	15.58	20	SF	3	C		27			3856
RAMY	14	1824	1826	1835	S04	E67		08	19.78	11	SF	3	C		22			3858
PALE	14	1852	1900U	1903D	N11	W72		08	9.37	11D	SF	3	C		29			3837
RAMY	14	1857	1900	1905	N10	W72		08	9.38	8	SF	3	C		32			3837
RAMY	14	1904	1907	1911D	S03	E67		08	19.80	7D	SN	3	C		24			3858
PALE	14	1905E	1905	1941	S04	E65		08	19.66	36D	SN	3	C		39		K	3858
PALE	14	1905E	1937U	1941	S04	E65		08	19.66	36D	SN	3	C		28		F K	3858
HOLL	14	1910	1921	1928	N15	W08		08	14.19	18	SF	3	C		39			3845
PALE	14	1929E	1931U	1959	S11	W14		08	13.76	30D	SF	3	C		97			3843
HOLL	14	2004E	2010U	2025	N13	W55		08	10.68	21D	SF	3	C		65		F	3839
HOLL	14	2047	2104	2124	S05	E65		08	19.73	37	SF	3	C		28		F	3858
HOLL	14	2128	2130	2137	N15	W50		08	11.11	9	SF	3	C		27			3839
HOLL	14	2204	2207	2217	N13	W53		08	10.92	13	SF	3	C		53			3839
PALE	14	2310	2310	2317	S11	W17		08	13.69	7	SF	3	C		20			3843
PALE	14	2333	2340	0003	N12	W74		08	9.40	30	1N	3	C				F	3837
LEAR	14	2336E	2342	0001	N05	W70		08	9.74	25D	1N	3	C		121		F	3837
HOLL	14	2336	2343	0003	N12	W73		08	9.48	27	1N	3	C				F	3837
PALE	14	2357	2359	0003	N15	W48		08	11.36	6	SF	3	C		66		F	3839
PALE	15	0020	0028	0055	N11	W74		08	9.44	35	SF	3	C					3837

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
LEAR	15	0023	0032	0049	N11 W74		08	9.44	26	SF	3	C				3837
HOLL	15	0024	0032	0052D	N12 W74		08	9.44	28D	SF	3	C				3837
PURP	15	0028	0033	0103	N12 W74		08	9.44	35	SF		C	0033	70		
YUNN	15	0030	0035	0045	N13 W71		08	9.66	15	1N		C		126		
PALE	15	0035	0037	0039	S02 E62		08	19.66	4	SF	3	C		63		3858
LEAR	15	0106	0107	0116	S07 W46		08	11.60	10	SF	3	C		39		F 3844
LEAR	15	0216	0223	0324	N07 W07		08	14.57	68	SF	3	C		50		K
LEAR	15	0216	0258	0324	N07 W07		08	14.57	68	SN	3	C		165		FHK
PALE	15	0220	0220	0236	N08 W07		08	14.57	16	SF	3	C		29		FH
PALE	15	0238	0238	0242	N07 W06		08	14.66	4	SF	3	C		34		
PALE	15	0247E	0300U	0300D	N07 W06		08	14.67	13D	SN	3	C		110		F
YUNN	15	0257	0311	0320	N08 W09		08	14.45	23	SN		C		47	.5	E
PURP	15	0258E	0258	0319	N07 W07		08	14.60	21D	SF		C	0258	147	1.5	
PEKG	15	0258	0300	0320D	N09 W07		08	14.60	22D	SN		P	0300	118	1.2	E
LEAR	15	0302	0302	0309	S12 E08		08	15.73	7	SF	3	C		43		3856
LEAR	15	0321	0325	0402	S08 W49		08	11.46	41	SF	3	C		67		F 3844
LEAR	15	0520	0521	0533	N16 W12		08	14.31	13	SF	3	C		38		F 3845
YUNN	15	0640	0645	0645D	N13 W74		08	9.69	5D	SN		P		31		
WEND	15	0640	0654	0701	N12 W09		08	14.60	21	1N		C	0654	106		
PURP	15	0641	0649	0712	N12 W79		08	9.32	31	1N		C	0649	168		H
LEAR	15	0641	0646	0704	N13 W77		08	9.46	23	SF	3	C				3837
BUCA	15	0646E		0702	N10 W80		08	9.27	16D	1N		C	0655	172		U
RAMY	15	1335	1335	1339	S12 E02		08	15.72	4	SF	3	C		27		3856
RAMY	15	1335	1411	1427	S12 E01		08	15.64	52	SN	3	C		27		3856
WEND	15	1350	1400	1414	S12 E01		08	15.65	24	SN		C	1400	50	.5	
RAMY	15	1432	1443	1519	S12 E01		08	15.68	47	SF	3	C		62		3856
RAMY	15	1540	1544	1600	S12 E01		08	15.73	20	SF	3	C		80		K 3856
RAMY	15	1540	1556	1600	S12 E01		08	15.73	20	SF	3	C		67		K 3856
HOLL	15	1543	1554	1600	S12 W00		08	15.65	17	SN	3	C		31		F 3856
HOLL	15	1611	1613	1628	S05 E57		08	19.94	17	SN	3	C		20		F 3858
HOLL	15	1716	1736	1803	N15 W18		08	14.36	47	SF	3	C		64		3845
HOLL	15	1819	1820	1825	N16 W21		08	14.:7	6	SF	3	C		23		F 3845
RAMY	15	2031	2042	2145	S12 W03		08	15.63	74	SN	3	C		33		F K 3856
RAMY	15	2031	2132	2145	S12 W03		08	15.63	74	SN	3	C		73		K 3856
HOLL	15	2119	2132	2137	S12 W05		08	15.51	18	SN	3	C		30		F 3856
HOLL	15	2214	2214	2221	S11 W05		08	15.55	7	SN	3	C		23		F 3856
HOLL	15	2240	2241	2249	S04 W36		08	13.25	9	SF	3	C		20		3843
HOLL	15	2243	2256	2315	S12 W06		08	15.49	32	SN	3	C		60		F 3856
HOLL	15	2249	2306	2333	N13 W61		08	11.34	44	SF	3	C		15		3839
HOLL	15	2327	2327	0024	S12 W07		08	15.45	57	SN	3	C		52		F 3856
HOLL	16	0019	0023	0036	S07 W61		08	11.44	17	SF	3	C		77		F 3844
LEAR	16	0020	0023	0031	S08 W61		08	11.44	11	SF	3	C		48		3844
LEAR	16	0203	0204	0220	N13 W68		08	10.95	17	SN	3	C		85		F 3839
LEAR	16	0448	0456	0520	S11 W08		08	15.60	32	SN	3	C		52		F 3856
HOLL	16	1611	1613	1628	N09 W30		08	14.42	17	SN	3	C		48		3861
RAMY	16	1612	1616	1624	N07 W29		08	14.50	12	SN	3	C		40		3861
HOLL	16	1753	1754	1801	N08 W30		08	14.49	8	SN	3	C		41		3861
RAMY	16	1754	1756	1759	N06 W29		08	14.57	5	SN	3	C		23		3861
RAMY	16	1838	1841	2056	N07 W27		08	14.75	138	SN	3	C		68		3861
HOLL	16	1839	1841	1901	N08 W28		08	14.68	22	SF	3	C		64		F 3861
RAMY	16	1846	1848	1857	S12 W17		08	15.50	11	SF	3	C		27		3856
LEAR	17	0038	0040	0047	N07 W34		08	14.48	9	SN	3	C		58		3861
PURP	17	0153	0155	0157	N07 W36		08	14.38	4	SN		C	0155	63	1.0	
PEKG	17	0153	0155	0215	N08 W36		08	14.38	22	SN		C	0155	46	.6	E
LEAR	17	0154	0155	0203	N07 W35		08	14.46	9	SN	3	C		64		3861
LEAR	17	0602	0607	0623	S11 W24		08	15.44	21	SF	3	C		28		3856
PEKG	17	0705E	0705E	0714	N15 W39		08	14.34	9D	SF		P	0705	42	.6	E
PEKG	17	0744	0750	0800	N15 W39		08	14.37	16	SN		C	0750	42	.6	D
ISTA	17	0748		0752	N15 W37		08	14.52	4	SF						D
PEKG	17	0749	0750	0808	S11 W27		08	15.29	19	SF		P	0750	34	.4	D
LEAR	17	0749	0749	0813	N16 W43		08	14.06	24	SF	3	C		23		3864
PURP	17	0802E	0802	0825	N19 W43		08	14.05	23D	SF		P	0802	98	1.4	G
PEKG	17	0803	0806	0813	N17 W44		08	13.99	10	SF		C	0806	71	1.0	E
ISTA	17	0805		0812	N15 W44		08	14.00	7	SF						E
RAMY	17	1203	1232	1245	N26 E46		08	21.08	42	SF	3	C		33		3862
HOLL	17	1337	1340	1349	N24 E46		08	21.12	12	SF	3	C		26		3862
RAMY	17	1435	1438	1500	S12 E86		08	24.09	25	SN	3	C				
RAMY	17	1443	1533	1556	S12 W31		08	15.28	73	SF	3	C		117		3856
HOLL	17	1457	1458	1507	S11 W28		08	15.51	10	SF	3	C		23		3856

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	17	1505	1519	1528D	S12	E81		08	23.74	23D	1B	3	C				
HOLL	17	1524E	1524U	1531	S12	E78		08	23.52	7D	1N	3	C				3867
HOLL	17	1533	1533	1541	S11	W30		08	15.39	8	SF	3	C		20		F 3856
HOLL	17	1607	1616	1623	N14	W42		08	14.49	16	SF	3	C		26		F 3864
HOLL	17	1642	1654	1703	N24	E45		08	21.17	21	SF	3	C		17		3862
HOLL	17	1652	1652	1658	N08	W40		08	14.70	6	SF	3	C		22		F 3861
HOLL	17	1744	1746	1811	N13	W43		08	14.49	27	SB	3	C		97		E 3864
RAMY	17	1746	1746	1807	N12	W43		08	14.50	21	SB	3	C		94		FE 3864
HOLL	17	2009	2010U	2019	S04	W63		08	13.13	10	SF	3	C		20		3843
HOLL	17	2026	2035	2049	N25	E43		08	21.18	23	SF	3	C		25		F 3862
HOLL	17	2026	2026	2050	S13	E82		08	24.04	24	SF	3	C				K 3867
HOLL	17	2026	2048	2050	S13	E82		08	24.04	24	SF	3	C				K 3867
HOLL	17	2115E	2116U	2120	N26	E40		08	20.99	5D	SN	3	C		53		3862
HOLL	17	2124E	2140U	2143	S13	E84		08	24.23	19D	SF	3	C				3867
HOLL	17	2153	2200U	2205	N14	W45		08	14.51	12	SF	3	C		36		F 3864
LEAR	18	0059	0106	0109D	S13	W32		08	15.62	10D	SN	3	C		89		F 3856
HOLL	18	0059	0106	0122	S12	W32		08	15.63	23	SB	3	C		66		FE 3856
PEKG	18	0101	0109	0120	S12	W32		08	15.63	19	SN		C	0105	88	1.1	E
HOLL	18	0105	0110	0123	S11	E65		08	22.94	18	SN	3	C				3867
LEAR	18	0106	0110	0117	S12	E81		08	24.15	11	SN	3	C				3867
PEKG	18	0107	0109	0114	S13	E85		08	24.46	7	1F		C	0109	50		H
PURP	18	0126E	0126	0148	N13	W10		08	17.30	22D	SN		C	0126	28	.3	G
PURP	18	0126E	0126	0239	S13	E79		08	24.02	73D	SN		C	0126	56		
PURP	18	0231E	0231U	0236	S14	W29		08	15.91	5D	SN		V	0231	56	.7	
LEAR	18	0242	0242	0250	S13	W36		08	15.39	8	SF	3	C		22		3856
LEAR	18	0348	0353	0406	N20	W30		08	15.86	18	SN	3	C		78		
PURP	18	0349E	0349	0407	N20	W31		08	15.79	18D	SN		C	0349	126	1.5	
LEAR	18	0404	0411	0424	S12	W37		08	15.38	20	SN	3	C		39		3856
LEAR	18	0718	0731	0824	S15	E77		08	24.14	66	SF	3	C				K 3867
LEAR	18	0718	0805	0824	S15	E77		08	24.14	66	1N	3	C				F K 3867
ISTA	18	0746		0759	S13	E77		08	24.14	13	1N						AD
WEND	18	1124	1134	1146	S12	E76		08	24.20	22	SF		C	1134	44		A
RAMY	18	1133	1134	1150	S11	E74		08	24.05	17	SF	3	C				3867
RAMY	18	1346	1411	1424	S13	E73		08	24.09	38	SF	3	C				F 3867
RAMY	18	1436	1438	1440	S14	W43		08	15.36	4	SF	3	C		44		3856
RAMY	18	1441	1503	1543	S12	E73		08	24.12	62	1B	3	C				F 3867
WEND	18	1457	1505	1513	S12	E74		08	24.20	16	SN		C	1505	38		
RAMY	18	1547	1559	1606	S12	E69		08	23.86	19	SF	3	C		37		3867
PEKG	18	2348	2351	2415	S14	E67		08	24.06	27	SF		P	2351	55		E
PEKG	19	0204	0239U	0245	S14	E66		08	24.08	41	1N		C	0239	97		E
PEKG	19	0230	0239	0245	N25	E26		08	21.12	15	SF		P	0239	50	.6	E
PEKG	19	0310	0317	0340	S14	E67		08	24.20	30	1N		C	0317	88		E
PEKG	19	0314	0317	0320	S11	W51		08	15.30	6	SF		C	0317	71	1.2	E
LEAR	19	0412	0413	0416	S12	W51		08	15.33	4	SN	3	C		38		3856
LEAR	19	0509	0513	0520	S13	E64		08	24.05	11	SN	3	C		22		F 3867
LEAR	19	0612	0619	0625	S11	W50		08	15.49	13	SN	3	C		23		F 3856
PEKG	19	0613	0618	0626	S09	W51		08	15.43	13	SF		P	0618	84	1.5	E
YUNN	19	0613E	0613U	0623	S06	W50		08	15.51	10D	SN		P	0613	110	1.8	E
PEKG	19	0638	0648U	0650D	S13	E62		08	23.96	12D	SN		P	0648	76		E
LEAR	19	0639	0645	0657	S13	E65		08	24.19	18	SN	3	C		43		F 3867
LEAR	19	0817	0818	0830	S12	W51		08	15.50	13	SN	3	C		31		F 3856
LEAR	19	0856	0859	0922D	S14	E57		08	23.68	26D	SF	3	C		27		K 3867
LEAR	19	0856	0912	0922D	S14	E57		08	23.68	26D	SF	3	C		78		F K 3867
YUNN	19	0927E	0927U	0932D	S17	E56		08	23.65	5D	SN		P	0927	31	.6	D
RAMY	19	1312E	1313	1329	S13	W54		08	15.47	17D	SF	3	C		19		3856
RAMY	19	1410	1413	1426	S12	E61		08	24.19	16	SN	3	C		59		3867
HOLL	19	1414E	1417	1425	S14	E57		08	23.90	11D	SN	3	C		29		F 3867
HOLL	19	1535	1550	1620	S10	W59		08	15.21	45	SN	3	C		61		F 3856
HOLL	19	1542	1551	1641	S10	E53		08	23.64	59	SF	3	C		19		F 3867
RAMY	19	1549	1550	1559	S13	W57		08	15.36	10	SN	3	C		45		3856
RAMY	19	1550	1551	1559	S11	E57		08	23.95	9	SN	3	C		20		3867
HOLL	19	1616	1619	1621	S06	W04		08	19.38	5	SF	3	C		30		3858
RAMY	19	1849	1853	1903	S12	E57		08	24.08	14	SF	3	C		34		EF 3867
HOLL	19	1852	1853	1859	S11	E55		08	23.93	7	SF	3	C		26		3867
PALE	19	2202E	2202U	2234	N07	W72		08	14.52	32D	SF	3	C		13		3861
PALE	19	2252	2252U	2335	S13	E53		08	23.95	43	SN	3	C		19		3867
LEAR	20	0049	0050	0055	S13	E53		08	24.04	6	SF	3	C		38		3867
LEAR	20	0213	0220	0227	S14	E52		08	24.03	14	SN	3	C		55		H 3867

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	20	0229	0230	0234	S14	E52		08	24.04	5	SF	3	C		29		3867
LEAR	20	0309	0311	0317	S13	E53		08	24.13	8	SN	3	C		48		3867
LEAR	20	0556	0558	0612	S11	W64		08	15.43	16	SN	3	C		33		3856
HOLL	20	1450	1451	1500	S14	E45		08	24.02	10	SF	3	C		22		3867
HOLL	20	1748	1748	1834	S09	W59		08	16.31	46	SF	3	C		14		3856
HOLL	20	1825	1826	1834	S12	E42		08	23.93	9	SF	3	C		19		3867
PALE	20	1835E	1837U	1850	S12	E43		08	24.02	150	SF	3	C		25		3867
HOLL	20	1855	1903	1910	N14	E68		08	25.93	15	SF	3	C		12		
HOLL	20	1917	1919	1923	N15	E65		08	25.73	6	SF	3	C		13		
PALE	20	2018	2020U	2028D	S10	W78		08	14.98	10D	SF	3	C		50		3856
HOLL	20	2050E	2050U	2101D	S04	E66		08	25.80	11D	SF	3	C		20		
PALE	20	2236E	2247U	0005	N16	E66		08	25.95	89D	SN	3	C		27		F 3870
PALE	20	2241	2242	2249D	S11	E40		08	23.96	8D	SN	3	C		167		H 3867
HOLL	20	2241	2244	2253	S12	E39		08	23.89	12	SF	3	C		90		3867
HOLL	20	2243	2257	2316D	N14	E69		08	26.17	33D	SF	3	C		14		3870
PALE	20	2332	2357U	D	S13	E40		08	24.00	D	SN	3	C		23		3867
LEAR	21	0013	0025	0126	S07	W20		08	19.51	73	1N	3	C		253		UF 3858
PEKG	21	0015	0020	0100	S07	W20		08	19.51	45	SN		C	0020	126	1.4	FGK
PEKG	21	0015	0025	0100	S07	W19		08	19.59	45	SN		C	0025	139	1.6	FG
HOLL	21	0024	0025	0041D	S05	W22		08	19.37	17D	1N	3	C		243		U 3858
LEAR	21	0030	0030	0035	S15	E40		08	24.05	5	SF	3	C		19		F 3867
LEAR	21	0116	0116	0122	S11	W70		08	15.78	6	SF	3	C		20		3856
PALE	21	0143E	0143U	0203	S08	W19		08	19.65	20D	SF	3	C		36		3858
LEAR	21	0352	0420	0504	S14	E39		08	24.11	72	SF	3	C		122		F 3867
LEAR	21	0845	0849	0923	S10	W67		08	16.33	38	SF	3	C		41		3856
HOLL	21	1559	1613	1638	N14	E57		08	25.98	39	SB	3	C		70		F 3870
HOLL	21	1656	1704	1726	N14	E57		08	26.02	30	SN	3	C		22		3870
HOLL	21	1734	1738	1739D	N17	E56		08	25.99	5D	SF	3	C		26		3870
HOLL	21	2257E	2259U	2301	S14	W84		08	15.60	4D	SF	3	C				3856
LEAR	22	0435	0441	0509	N15	E51		08	26.05	34	SN	3	C		69		F 3870
PEKG	22	0437E	0437	0441	N15	E51		08	26.06	4D	SN		C	0437	29	.5	D
LEAR	22	0641	0644	0806	N15	E50		08	26.07	85	SN	3	C		71		K 3870
LEAR	22	0641	0730	0806	N15	E50		08	26.07	85	SF	3	C		34		K 3870
LEAR	22	0807	0808	0819	N15	E50		08	26.13	12	SF	3	C		71		3870
LEAR	22	0833	0835	0853	N15	E47		08	25.92	20	SN	3	C		140		F 3870
RAMY	22	1338	1340	1351	N16	E44		08	25.91	13	SN	3	C		50		3870
RAMY	22	1430	1436	1440	N16	E44		08	25.94	10	SF	3	C		19		3870
HOLL	22	1739	1748	1909	N16	E43		08	26.00	90	SN	3	C		165		F 3870
HOLL	22	2130E	2131	2141	N16	E40		08	25.93	11D	SF	3	C		32		F 3870
HOLL	22	2259	2302	2319	N16	E38		08	25.84	20	SN	3	C		82		F 3870
LEAR	23	0050E	0053U	0058D	S09	W45		08	19.66	8D	SF	2	C		26		F 3858
LEAR	23	0217	0217	0302	N14	E38		08	25.97	45	SN	2	C		100		F 3870
LEAR	23	0339	0342	0520	N15	E35		08	25.80	101	SF	2	C		48		K 3870
LEAR	23	0339	0406	0520	N15	E35		08	25.80	101	SN	2	C		88		F K 3870
LEAR	23	0514	0514	0700	N15	E38		08	26.10	106	SF	2	C		91		F 3870
PURP	23	0705	0708	0717	N17	E38		08	26.19	12	SB		C	0708	28	.4	
LEAR	23	0850	0854U	0854D	N15	E33		08	25.87	4D	SN	2	C		75		F 3870
HOLL	23	1617	1617	1619	N14	E29		08	25.87	2	SF	3	C		26		3870
HOLL	23	1654	1656	1702	N16	E30		08	25.98	8	SN	3	C		21		3870
HOLL	23	2107	2108	2139	N16	E27		08	25.93	32	SF	3	C		30		F 3870
YUNN	24	0130	0139	0143D	N25	W40		08	20.96	13D	SF		P		47	.7	
LEAR	24	0653	0653	0700	N14	E23		08	26.03	7	SF	3	C		24		F 3870
LEAR	24	0842	0843	0849	N16	E20		08	25.88	7	SF	2	C		32		F 3870
LEAR	24	0852	0853	0906	N16	E21		08	25.96	14	SN	2	C		38		F 3870
LEAR	24	0925	0930	0932D	N15	E19		08	25.83	7D	SF	2	C		75		F 3870
WEND	24	0926	0927	0930	N19	E19		08	25.84	4	SF		C	0927	25	.3	
RAMY	24	1434	1453	1531	S15	W34		08	22.03	57	SF	3	C		54		3873
HOLL	24	1435	1454	1530	S13	W33		08	22.12	55	SF	3	C		30		F 3873
RAMY	24	1438	1439	1449	N16	E17		08	25.90	11	SN	3	C		47		3870
RAMY	24	1532	1532	1539	N13	E17		08	25.93	7	SN	3	C		31		3870
HOLL	24	1612	1612	1619	N07	E57		08	28.95	7	SF	3	C		16		
HOLL	24	1749	1753	1759	S12	W11		08	23.91	10	SF	3	C		23		3867
LEAR	25	0022	0026	0036	N07	E81		08	31.09	14	SF	3	C				
PEKG	25	0044	0048	0122	N07	E80		08	31.03	38	SF		C	0048	21		D
PEKG	25	0055	0113	0120	N07	E55		08	29.16	25	SN		C	0113	59	1.0	E
LEAR	25	0117	0118	0126	N16	E12		08	25.96	9	SF	3	C		25		3870

H - ALPHA S O L A R F L A R E S

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
LEAR	25	0214	0221	0234	N08	E54		08	29.14	20	SF	3	C		40		F 3875
PEKG	25	0330	0334	0346	N07	E53		08	29.12	16	SN		C	0334	46	.8	E
LEAR	25	0558	0601	0609	N08	E53		08	29.22	11	SF	3	C		25		3875
LEAR	25	0855	0859	0909	N17	E08		08	25.98	14	SF	3	C		42		F 3870
YUNN	25	0914	0918	0931	N15	E07		08	25.92	17	SN		C		110	1.2	F
LEAR	25	0915	0918	0937D	N16	E06		08	25.84	22D	SF	3	C		81		F 3870
RAMY	25	1538	1558	1602	N16	E04		08	25.95	24	SF	3	C		31		3870
HOLL	25	2237	2245	2250	N15	E02		08	26.09	13	SF	3	C		57		F 3870
HOLL	25	2319	2323	2333D	S13	W25		08	24.08	14D	SF	3	C		57		F 3867
LEAR	26	0022	0023	0027	S12	W29		08	23.83	5	SF	3	C		29		3867
LEAR	26	0135	0140	0157	N16	W01		08	25.99	22	SF	3	C		35		F 3870
PURP	26	0229E	0229	0234	N16	W04		08	25.80	5D	SN		C	0229	21	.2	
LEAR	26	0229	0231	0234	N16	W03		08	25.88	5	SF	3	C		60		H 3870
LEAR	26	0235	0235	0239	S13	W29		08	23.92	4	SF	3	C		53		3867
LEAR	26	0302	0305	0318	N16	W04		08	25.82	16	SF	3	C		33		F 3870
LEAR	26	0720	0736	0759	S11	W32		08	23.90	39	SF	3	C		67		3867
PEKG	26	0759E	0800	0800D	S06	W92		09	2.22	1D	SF		C	0800	42		A
PEKG	26	0759E	0759	0809	S13	W55		08	22.18	10D	SF		P	0759	34	.6	E
HOLL	26	1424	1427	1439D	N15	W10		08	25.84	15D	SB	3	C		178		F 3870
HOLL	26	1451	1451U	1537	S12	W34		08	24.06	46	SF	3	C		24		F 3867
HOLL	26	1505	1506	1522	N21	W20		08	25.09	17	SF	3	C		33		F 3877
HOLL	26	1951	1953	2015	N17	W14		08	25.76	24	SN	3	C		81		F 3870
HOLL	26	2147	2200	0003D	N16	W15		08	25.77	136D	SN	3	C		71		K 3870
HOLL	26	2147	2302	0003D	N16	W15		08	25.77	136D	1B	3	C		351		FEK 3870
PEKG	26	2315	2325	2350	N16	W14		08	25.91	35	1N		P	2325	294	3.2	FU
HOLL	26	2324	2326	0015D	S11	W42		08	23.81	51D	SN	3	C		25		3867
PEKG	26	2325E	2329	2335	S11	W42		08	23.81	10D	SF		P	2329	42	.6	E
HOLL	26	2336	2339	2349	N12	E82		09	2.17	13	SF	3	C				3880
LEAR	27	0000E	0006	0230	N15	W14		08	25.94	150D	SB	3	C		142		K 3870
LEAR	27	0000E	0140	0230	N15	W14		08	25.94	150D	SB	3	C		181		FEK 3870
HOLL	27	0004	0010	0048D	N15	W11		08	26.17	44D	SB	3	C		135		F 3870
PEKG	27	0005	0015	0030	N16	W14		08	25.94	25	SN		C	0015	147	1.6	F
LEAR	27	0005	0008	0018	S11	W42		08	23.84	13	SF	3	C		25		3867
PURP	27	0017	0033	0040	N14	W14		08	25.95	23	SF		C	0033	56	.6	E
YUNN	27	0035E	0037U	0044	N14	W13		08	26.04	9D	SN		P	0037	157	1.7	E
YUNN	27	0035E	0037U	0048	S11	W42		08	23.86	13D	SN		P	0037	47	.7	D
HOLL	27	0039	0041	0049D	S11	W43		08	23.79	10D	SN	3	C		25		3867
LEAR	27	0114	0124	0154	N15	W27		08	25.01	40	SN	3	C		184		F 3871
PEKG	27	0120E	0130	0140	N16	W28		08	24.93	20D	SN		P	0130	50	.6	E
PURP	27	0122E	0122U	0141	N16	W28		08	24.93	19D	SN		C	0122	126	1.5	G
PEKG	27	0138	0143	0210	N15	W15		08	25.93	32	SN		C	0143	92	1.0	F
PURP	27	0139	0141	0203	N15	W13		08	26.08	24	SB		C	0141	168	1.8	
YUNN	27	0145E	0145U	0212	N14	W14		08	26.01	27D	SB		P	0145	189	2.0	
LEAR	27	0234	0234	0245	N12	E80		09	2.14	11	SF	3	C				3880
LEAR	27	0257	0302	0428	N15	W15		08	25.99	91	SN	3	C		61		K 3870
LEAR	27	0257	0326	0428	N15	W15		08	25.99	91	1B	3	C		251		ZFK 3870
LEAR	27	0319	0320	0341	N21	W26		08	25.14	22	SF	3	C		39		F 3877
PEKG	27	0322	0335	0408	N15	W16		08	25.93	46	SN		C	0335	160	1.7	F
YUNN	27	0323	0327	0328D	N15	W15		08	26.00	5D	1B		P		252	2.7	
YUNN	27	0323E	0323U	0328	S11	W41		08	24.05	5D	SN		P	0323	47	.7	E
PURP	27	0327E	0330	0400	N15	W14		08	26.08	33D	1B		C	0330	237	2.5	
LEAR	27	0354	0355	0404	N12	E79		09	2.12	10	SF	3	C				3880
LEAR	27	0443	0443	0453	S12	W44		08	23.88	10	SF	3	C		26		3867
LEAR	27	0516	0516	0527	N11	E78		09	2.09	11	SN	3	C				3880
LEAR	27	0533	0542	0601	S12	W45		08	23.84	28	SN	3	C		39		3867
LEAR	27	0540	0551	0622D	N15	W16		08	26.02	42D	1B	3	C		251		ZF 3870
PEKG	27	0543	0551	0610	N15	W17		08	25.95	27	SN		C	0551	168	1.8	FT
LEAR	27	0546	0551	0600	N22	W29		08	25.01	14	SF	3	C		30		F 3877
LEAR	27	0602	0606	0622D	N22	W29		08	25.02	20D	SF	3	C		39		3877
PURP	27	0603	0603U	0622	N15	W16		08	26.04	19	SN		P	0603	84	.9	
LEAR	27	0642	0643	0652	S11	W45		08	23.89	10	SF	3	C		21		3867
LEAR	27	0647	0651	0659	N12	E78		09	2.16	12	SF	3	C				3880
LEAR	27	0731	0736	0759	S12	W45		08	23.92	28	SN	3	C		38		3867
LEAR	27	0802	0808	0818	N24	W32		08	24.86	16	SF	3	C		30		3877
LEAR	27	0811	0812	0828	N11	E75		09	1.99	17	SF	3	C				3880
LEAR	27	0817	0817	0824	S12	W46		08	23.88	7	SF	3	C		20		3867
LEAR	27	0903	0913	0925D	N15	W19		08	25.94	22D	SB	3	C		176		FE 3870
MONT	27	0911	0920	0934	N15	W18		08	26.02	23	SN		C	0920	150		
YUNN	27	0913E	0914U	0945	N15	W19		08	25.94	32D	SB		P	0914	173	1.9	E

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	Sea	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
YUNN	27	0957	1000	1003D	S10	W46		08	23.96	6D	SN		P		31	.5	D
RAMY	27	1318	1319	1350	N16	W20		08	26.04	32	SN	3	C		60		3870
HOLL	27	1344	1347	1407	S10	W50		08	23.81	23	SF	3	C		22		F 3867
RAMY	27	1424	1424	1442	S10	W47		08	24.07	18	SF	3	C		26		3867
RAMY	27	1430	1438	1439	N15	W19		08	26.16	9	SN	3	C		28		3870
HOLL	27	1431	1432	1453	N16	W21		08	26.01	22	SN	3	C		33		K 3870
HOLL	27	1431	1448	1453	N16	W21		08	26.01	22	SN	3	C		27		F K 3870
RAMY	27	1513	1517	1552	N14	W23		08	25.89	39	SN	3	C		96		3870
HOLL	27	1513	1532	1553	N16	W22		08	25.96	40	SN	3	C		35		F 3870
HOLL	27	1601	1614	1629	N11	E74		09	2.24	28	SF	3	C				3880
RAMY	27	1631	1643	1658	N15	W20		08	26.17	27	SN	3	C		169		F 3870
HOLL	27	1634	1639	1654	N16	W23		08	25.94	20	SN	3	C		113		F 3870
HOLL	27	1752	1755	1807	N16	W23		08	26.00	15	SN	3	C		23		F 3870
HOLL	27	1814	1818	1825	N16	W24		08	25.94	11	SB	3	C		46		3870
HOLL	27	2009	2011	2023	N15	W22		08	26.17	14	SF	3	C		83		3870
HOLL	27	2122	2130	2156	N16	W25		08	25.99	34	SN	3	C		117		F 3870
HOLL	27	2127	2131	2146	N25	W40		08	24.79	19	SF	3	C		27		F 3877
LEAR	28	0004	0005	0021	N09	E14		08	29.05	17	SF	3	C		27		F 3875
PEKG	28	0015	0023	0109	N15	W41		08	24.90	54	SF		P	0023	46	.6	E
PEKG	28	0109	0115	0125	N16	W28		08	25.92	16	SF		P	0115	46	.5	E
LEAR	28	0121	0122	0135	N12	E67		09	2.11	14	SF	3	C		20		3880
LEAR	28	0141	0153	0214	N14	E65		09	1.99	33	SF	3	C		23		3880
YUNN	28	0230E	0233U	0233D	N15	W30		08	25.83	3D	SN		P	0233	31	.4	E
LEAR	28	0315	0324	0405	S10	W55		08	24.00	50	SN	3	C		120		F 3867
PEKG	28	0320	0324	0337	S09	W56		08	23.93	17	SF		P	0324	84	1.4	E
PEKG	28	0624E	0635	0755	N09	W04		08	27.97	91D	SF		P	0635	160	1.6	U
BUCA	28	0640	0644	0656	S09	W63		08	23.55	16	SN		C	0644	86	1.9	
LEAR	28	0642	0643	0705	S10	W61		08	23.69	23	SN	3	C		68		F 3867
PEKG	28	0645E	0645	0708	S09	W60		08	23.78	23D	1N		P	0645	105	2.3	E
PEKG	28	0746	0748	0807	N24	W43		08	25.00	21	SF		P	0748	126	1.8	F
LEAR	28	0747	0749	0800	N23	W43		08	25.01	13	SF	3	C		37		F 3877
RAMY	28	1149	1149	1257	N12	E62		09	2.17	68	SN	3	C		74		3880
HOLL	28	1742	1743	1803D	N10	W10		08	27.99	21D	SF	3	C		21		K 3881
HOLL	28	1742	1801	1803D	N10	W10		08	27.99	21D	SF	3	C		59		K 3881
PALE	28	1954	1958	2022	N08	E27		08	30.85	28	SB	3	C		164		F 3876
PALE	28	2045	2047	2102	N10	W11		08	28.04	17	SN	3	C		51		3881
PALE	28	2257	2300	2305D	N15	W36		08	26.23	8D	SN	3	C		188		3870
LEAR	28	2348	2351	0020	N16	W53		08	24.97	32	SN	3	C		117		F 3871
PALE	28	2348	2352	0019	N15	W53		08	24.98	31	SN	3	C		143		3871
PEKG	28	2351	2353	2400	N16	W54		08	24.89	9	1N		C	2353	126	2.2	E
LEAR	29	0138	0139	0159	S10	W65		08	24.18	21	SF	3	C		26		F 3867
LEAR	29	0144	0146	0201	N06	E25		08	30.94	17	SF	3	C		29		3876
LEAR	29	0217	0219	0228	N15	W42		08	25.91	11	SF	3	C		55		3870
LEAR	29	0314	0316	0333	N16	W37		08	26.33	19	SN	3	C		63		3870
PEKG	29	0320	0329	0408	N14	W44		08	25.81	48	SF		P	0329	63	.9	E
PEKG	29	0345	0346	0418	N16	W38		08	26.27	33	SN		P	0346	42	.6	DK
PEKG	29	0345	0415	0418	N16	W38		08	26.27	33	SF		P	0415	46	.6	E
LEAR	29	0551	0552	0559	N15	W41		08	26.14	8	SF	3	C		50		F 3870
LEAR	29	0810	0810	0816	N05	E22		08	30.99	6	SF	3	C		23		3876
LEAR	29	0827	0828	0833	S13	E42		09	1.52	6	SF	3	C		20		3879
RAMY	29	1455	1517	1535	S09	W75		08	23.99	40	SF	3	C				3867
HOLL	29	1455	1518	1528	S07	W76		08	23.93	33	SF	3	C				3867
RAMY	29	1550	1552	1602	N12	E46		09	2.13	12	SF	3	C		42		3880
HOLL	29	1748	1758	1805	S16	W80		08	23.67	17	SF	3	C				3867
LEAR	30	0016	0017	0020	S10	W83		08	23.77	4	SF	3	C				F 3867
LEAR	30	0103	0105	0119	S00	E59		09	3.45	16	SN	3	C		78		3882
PALE	30	0219E	0219U	0224D	N13	E38		09	1.97	5D	1N	3	C		247		3880
LEAR	30	0223E	0223U	0238	N12	E40		09	2.12	15D	SF	2	C		115		F 3880
LEAR	30	0406	0407	0411	N21	W66		08	25.11	5	SF	3	C		32		3877
YUNN	30	0648	0656	0701D	N10	E44		09	2.59	13D	SN		P		31	.4	D
LEAR	30	0654	0702	0717	N13	E43		09	2.53	23	SF	3	C		42		F 3880
LEAR	30	0713	0718	0724	S02	E56		09	3.49	11	SF	3	C		17		F 3882
LEAR	30	0830	0830	0837	S02	E56		09	3.54	7	SF	3	C		19		F 3882
LEAR	30	2358	2359	0007	N23	W77		08	25.06	9	SF	3	C				3877
YUNN	31	0119E	0133	0215	N16	E88		09	6.73	56D			P				AG
PALE	31	0128E	0132U	0144D	N19	E90		09	6.93	16D	SF	3	C				
PALE	31	0144	0148	0240	N12	E28		09	2.18	56	1B	3	C		376		UF 3880

H - ALPHA SOLAR FLARES

AUGUST 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat CMD	Hale Plage Region	CMP Mo Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
LEAR	31	0146	0149	0242	N11 E32		09 2.48	56	1B	3	C		350		K 3880
LEAR	31	0146	0202	0242	N11 E32		09 2.48	56	1B	3	C		475		FEK 3880
YUNN	31	0201E	0202	0215D	N11 E30		09 2.34	14D	1N		P		252	3.0	F
LEAR	31	0205	0209	0218	N09 W41		08 28.01	13	SF	3	C		32		3881
PURP	31	0207E	0208U	0214D	N11 E33		09 2.57	7D	1B		P	0208	279	3.4	
LEAR	31	0305	0316	0336	N19 W71		08 25.71	31	SF	3	C		127		3877
LEAR	31	0448	0510	0530	N22 W77		08 25.28	42	SF	3	C				H 3877
LEAR	31	0517	0526	0557	N08 E73		09 5.70	40	SF	3	C				F 3885
PURP	31	0524	0531	0545	N18 E72		09 5.71	21	SN		P	0531	42		H
YUNN	31	0527E	0529	0548	N06 E72		09 5.62	21D	1N		P		63		
YUNN	31	0550	0604	0725	N12 E88		09 6.88	95			C				AG
LEAR	31	0727	0727	0736	N20 W80		08 25.19	9	SF	3	C				F 3877
LEAR	31	0823	0824	0830	N08 W46		08 27.90	7	SF	3	C		22		3881
HOLL	31	1942	1946	2010	S19 E45		09 4.26	28	SN	3	C		136		3883
HOLL	31	2306	2306	2313	S16 E11		09 1.80	7	SF	3	C		33		F 3879

"REMARKS":

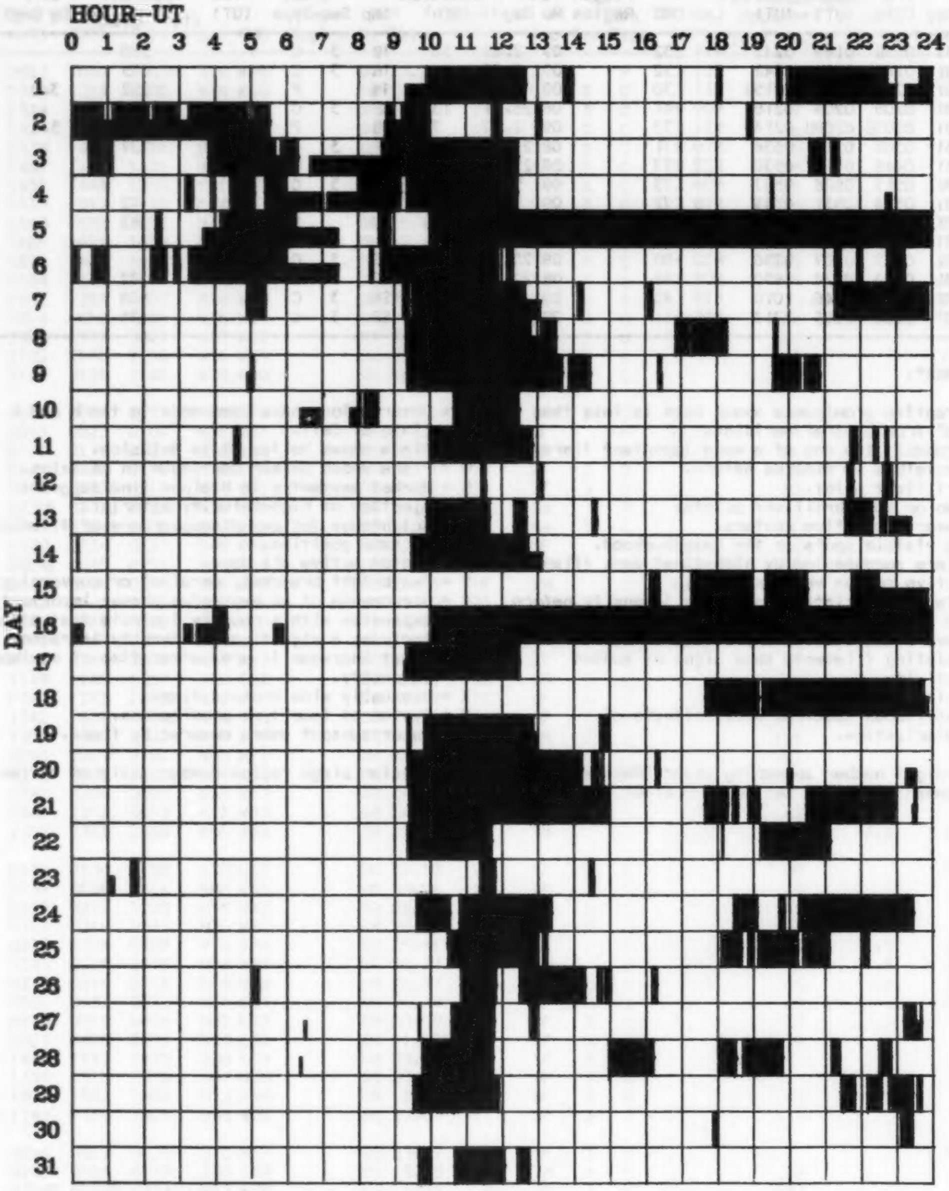
A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

The 4-digit number appearing under "Remarks" denotes the calcium plage region number assigned by the Space Environment Services Center in Boulder, Colorado.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

AUGUST 1982



Observatories included in total patrol:

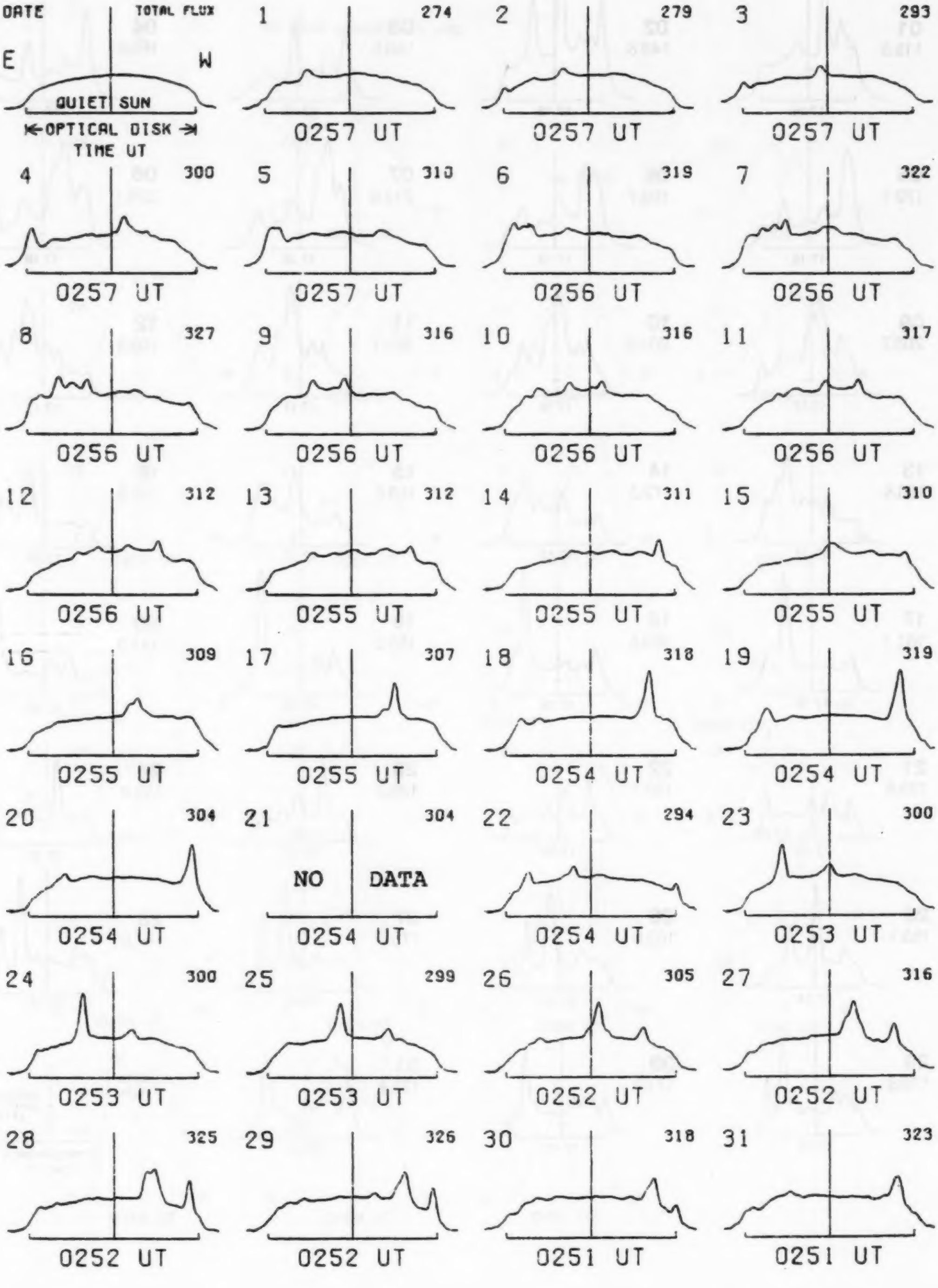
Bucharest	Istanbul	Manila	Palehua	Ramey
Holloman	Learmonth	Monte Mario	Peking	Wendelstein
			Purple Mt.	Yunnan

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS
AUGUST 1982

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

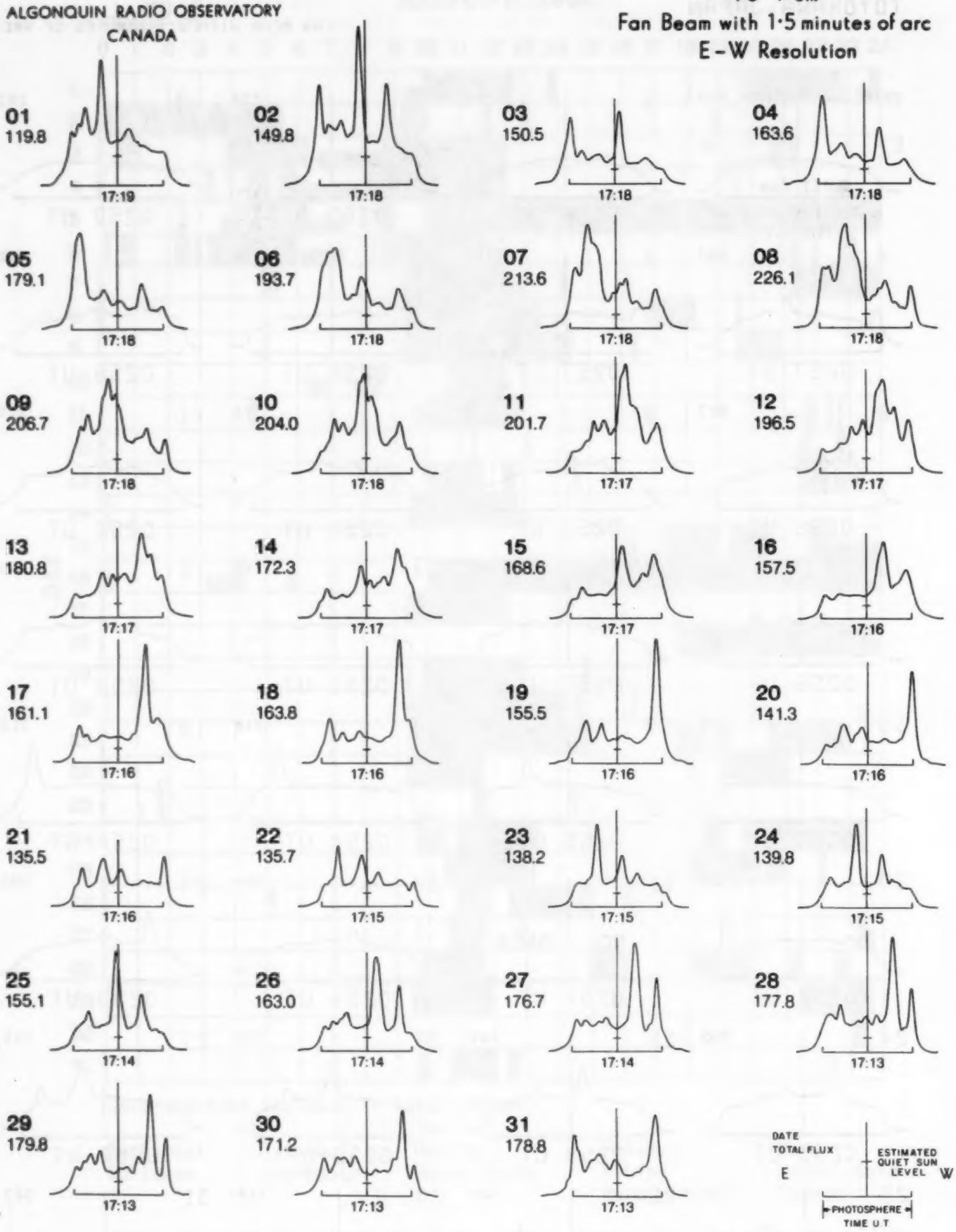


EAST-WEST SOLAR SCANS

AUGUST 1982

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

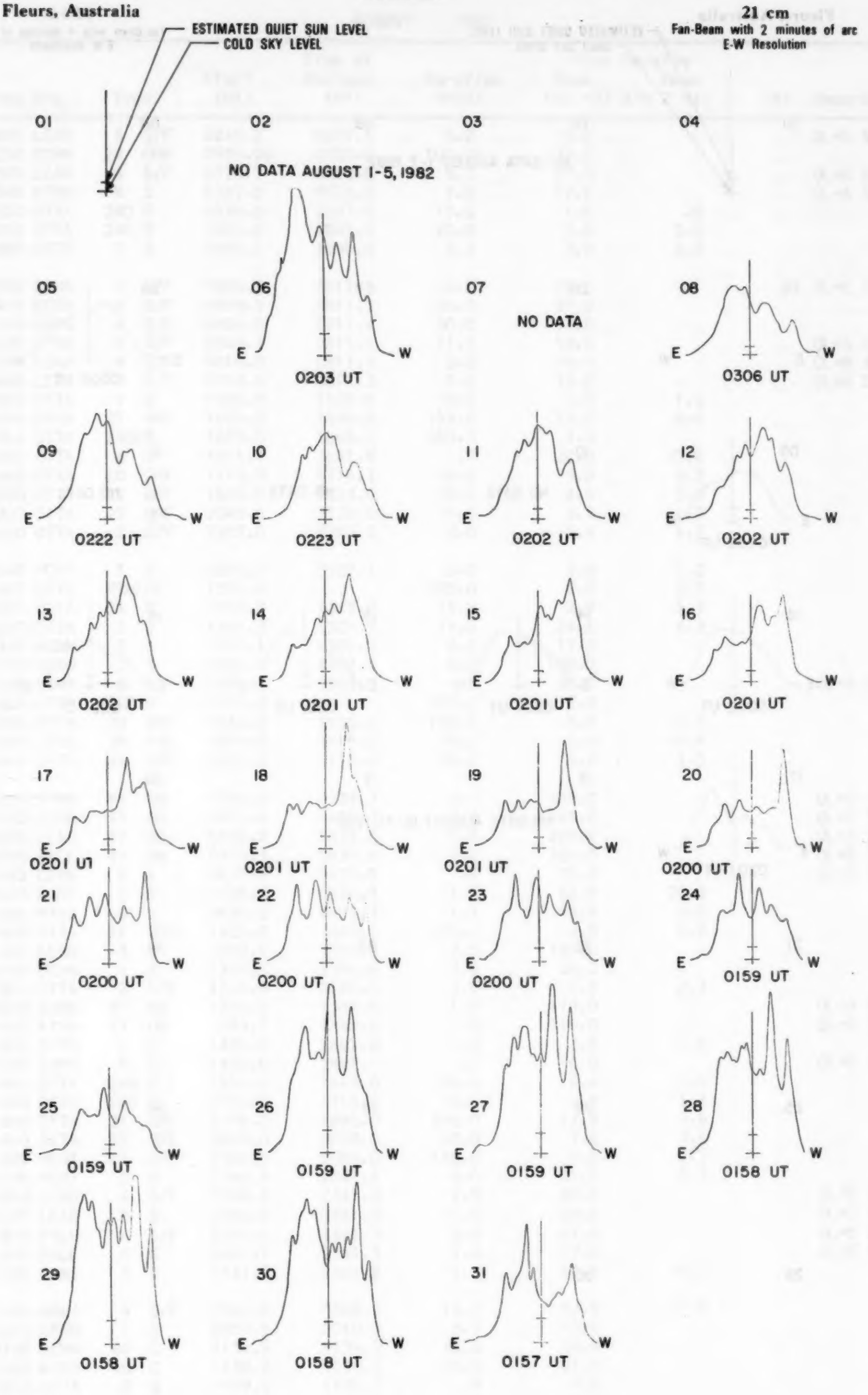


EAST-WEST SOLAR SCANS

AUGUST 1982

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

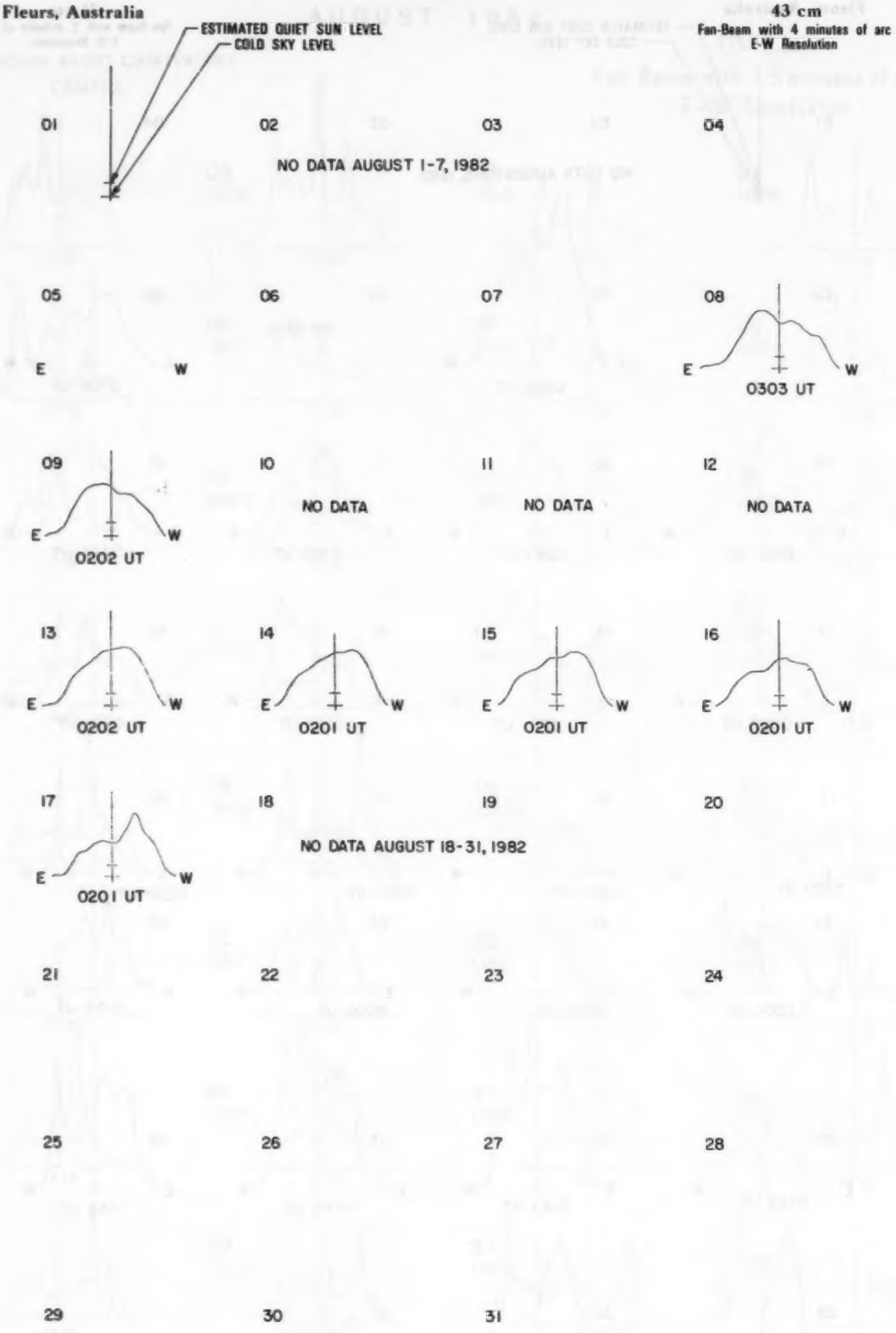


EAST-WEST SOLAR SCANS

AUGUST 1982

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
01	2695	LEAR	4 S/F	0246.8	0247.1	6.2	8.0			QL=6 ST=2 TYP=3
	3200	BERN	22 GRF	0655.0U	0722.6	100.0U	37.0			
	2695	LEAR	4 S/F	0718.3	0722.6	5.3	17.0			QL=6 ST=2 TYP=3
	2695	ATHN	8 S	0722.0	0722.6	1.8	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	240 R	1830.0	1847.0	17.0	1.6	.8		
	2800	OTTA	240 R	1925.0	1945.0	20.0	3.6	2.0		
	2800	OTTA	1 S	1949.0	1950.5	3.2	3.0	2.0		
02	8800	ATHN	4 S/F	0806.3	0811.1	14.2	15.0			QL=6 ST=2 TYP=3
	8400	BERN	4 S/F	0808.8	0811.3	30.0	27.0			
	3200	BERN	4 S/F	0808.8	0811.4	30.0	34.0			
	2695	ATHN	4 S/F	0809.1	0811.1	11.4	10.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0810.0	0811.3	2.8	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0810.0	0811.3	2.8	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	1 S	1508.0	1509.0	10.0	1.8	1.2		
	2800	OTTA	21 GRF	1605.0	1640.0	155.0	15.6	6.6		
	2800	OTTA	240AR	1605.0	1845.0	160.0	4.0			
	2800	OTTA	8 S	1621.1	1621.4	.7	20.0	10.0		
	2800	OTTA	20 GRF	1713.0	1716.7	18.0	9.8	3.2		
	2800	OTTA	22 GRF	1805.0	1824.0	30.0	4.6	2.0		
	2800	OTTA	20 GRF	2040.0	2120.0	75.0	2.4	1.2		
	2800	OTTA	2 S/F	2207.0	2207.2	3.0	2.4	1.2		
03	2695	PENT	1 S	0029.0	0029.1	3.0	2.8	1.2		
	2800	OTTA	27AFRF	1300.0		355.0	2.8	2.5		
	2800	OTTA	24 R	1300.0	1315.0	15.0	2.8	1.4		
	2800	OTTA	3 S	1301.0	1301.5	11.0	24.6	6.2		
	8400	BERN	3 S	1301.1	1301.4	6.0	17.0			
	3200	BERN	3 S	1301.1	1301.4	6.0	108.0			
	2695	SGMR	8 S	1301.3	1301.5	.5	40.0			QL=6 ST=2 TYP=3
	2800	OTTA	24P R	1315.0		285.0	2.8			
	2800	OTTA	20 GRF	1540.0	1555.0	100.0	3.0	1.5		
	2800	OTTA	26 FAL	1800.0	1855.0	55.0	-2.8	-1.4		
	2800	OTTA	22 GRF	2030.0	2115.0	70.0	3.0	1.5		
04	8800	ATHN	47 GB	0334.8	0335.3	3.7	169.0			QL=6 ST=2 TYP=5
	8800	ATHN	47 GB	0434.8	0435.3	3.7	169.0			QL=6 ST=3 TYP=5
	8800	LEAR	47 GB	0435.3	0435.8	3.8	200.0			QL=3 ST=2 TYP=5
	8800	PALE	47 GB	0435.3	0435.8	2.0	200.0			QL=6 ST=2 TYP=5
	2695	LEAR	8 S	0435.6	0435.8	.4	15.0			QL=3 ST=2 TYP=3
	8800	MANI	3 S	0436.0	0436.5	1.3	62.8	20.9		
	2695	MANI	3 S	0436.0	0436.7	1.3	15.5	5.2		
	2800	OTTA	21 GRF	1225.0	1445.0	155.0	4.0	2.8		
	8400	BERN	3 S	1353.6	1354.5	7.0	121.0			
	3200	BERN	1 S	1353.6	1354.6	7.0	16.0			
	2800	OTTA	2 S/F	1354.0	1354.8	3.5	4.8	2.4		
	8800	SGMR	47 GB	1354.3	1354.6	1.0	110.0			QL=6 ST=2 TYP=5
	8800	ATHN	47 GB	1355.1	1355.6	1.5	119.0			QL=6 ST=2 TYP=5
	2800	OTTA	1 S	1400.8	1401.0	1.0	3.6	1.8		
	2695	SGMR	8 S	1400.8	1401.1	.3	26.0			QL=6 ST=2 TYP=3
	2800	OTTA	240 R	1515.0	1645.0	90.0	4.4	2.0		
	2800	OTTA	240 R	1705.0	1715.0	10.0	2.8	1.4		
	2800	OTTA	21 GRF	1725.0	1930.0	350.0	12.8	6.6		
	2800	OTTA	22 GRF	2005.0	2018.0	40.0	7.4	4.6		
	2695	PENT	21 GRF	2340.0	2358.0	130.0	3.0	2.2		
	2695	PENT	3 S	2340.5	2341.5	6.0	21.2	5.2		
	8800	LEAR	4 S/F	2340.6	2341.3	2.5	48.0			QL=5 ST=2 TYP=3
	2695	LEAR	8 S	2340.8	2341.3	1.5	20.0			QL=5 ST=2 TYP=3
	8800	PALE	4 S/F	2341.1	2341.3	2.4	47.0			QL=6 ST=2 TYP=3
	2695	PALE	8 S	2341.1	2341.3	1.4	17.0			QL=6 ST=2 TYP=3
	2695	MANI	3 S	2341.2	2341.8	1.3	19.6	6.5		
05	2695	MANI	4 S/F	0343.0	0349.2	11.0	52.9	17.6		
	3200	BERN	1 S	0939.5	0940.0	3.0	13.0			
	8400	BERN	46 C	1138.8	1139.1	18.0	78.0			
	3200	BERN	46 C	1138.8	1139.2	18.0	21.0			
	2800	OTTA	8 S	1139.0	1139.1	.5	7.0			
	2800	OTTA	8 S	1144.0	1144.1	.5	5.2			
	2800	OTTA	1 S	1433.8	1433.9	1.5	7.0	2.4		
	2800	OTTA	1 S	1437.5	1438.0	2.5	2.0	1.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
05	2800	OTTA	240 R	1505.0	1540.0	35.0	2.8	1.4		
	2800	OTTA	1 S	1622.5	1623.0	2.5	3.2	2.2		
	2800	OTTA	240 R	1705.0	1720.0	15.0	2.8	1.4		
	2800	OTTA	2 S/F	1753.0	1754.0	7.0	4.6	1.6		
	2800	OTTA	45 C	2129.0	2132.7	9.0	11.2	3.5		
06	2695	LEAR	4 S/F	0753.0	0753.1	3.6	11.0			QL=6 ST=2 TYP=3
	8800	ATHN	8 S	1119.6	1120.3	2.0	43.0			QL=6 ST=2 TYP=3
	8400	BERN	3 S	1119.6	1120.5	4.0	31.0			
	8800	SGMR	8 S	1120.3	1120.6	.5	29.0			QL=6 ST=2 TYP=3
	2800	OTTA	4 S/F	1124.0	1125.0	2.0	17.4	10.4		
	2695	SGMR	8 S	1124.1	1124.8	.7	29.0			QL=6 ST=2 TYP=3
	2800	OTTA	1 S	1206.0	1206.2	1.5	3.4	1.7		
	2695	ATHN	4 S/F	1333.6	1335.6	4.9	31.0			QL=6 ST=2 TYP=3
	2800	OTTA	400 F	1334.0	1336.0	4.0	40.0			
	8400	BERN	4 S/F	1341.1	1342.4	10.0U	20.0			
	3200	BERN	4 S/F	1341.1	1342.4	10.0U	27.0			
	2800	OTTA	4 S/F	1342.2	1342.5	3.5	39.0	6.5		
	2695	ATHN	4 S/F	1343.1	1343.3	3.0	47.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	1343.1	1343.3	2.2	8.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1435.0	1450.0	75.0	3.8	2.0		
	2800	OTTA	4 S/F	1631.2	1632.2	2.0	10.8			
	8800	PALE	8 S	1917.3	1917.6	1.3	22.0			QL=6 ST=2 TYP=3
	2800	OTTA	1 S	1945.2	1946.7	2.0	2.4	1.2		
	2695	PENT	4 S/F	2322.0	2328.9	14.0	30.0	5.6		
	2695	PALE	4 S/F	2328.3	2328.6	2.7	33.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	2328.3	2328.6	1.5	33.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	2330.1	2330.3	1.7	18.0			QL=6 ST=2 TYP=3
07	8800	LEAR	20 GRF	0246.5	0332.0	114.5	17.0			QL=6 ST=2 TYP=2
	2695	LEAR	20 GRF	0249.6	0252.0	69.4	7.0			QL=6 ST=2 TYP=2
	8800	LEAR	4 S/F	0506.1	0506.8	2.2	13.0			QL=6 ST=2 TYP=3
	2695	LEAR	20 GRF	0738.1	0753.1	17.9	11.0			QL=6 ST=2 TYP=2
	8400	BERN	45 C	0804.2	0807.4	9.0	71.0			
	3200	BERN	45 C	0804.2	0807.6	9.0	43.0			
	2695	ATHN	8 S	0804.6	0804.8	.7	11.0			QL=6 ST=2 TYP=3
	8800	ATHN	8 S	0804.6	0804.8	.7	32.0			QL=6 ST=2 TYP=3
	8800	LEAR	47 GB	0804.8	0805.1	6.0	42.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	0805.0	0805.1	3.8	20.0			QL=6 ST=2 TYP=3
	8800	MANI	4 S/F	0805.6	0808.4	4.4	89.3	29.8		
	2695	MANI	4 S/F	0805.7	0808.6	4.8	41.9	14.0		
	8800	ATHN	8 S	0806.8	0807.3	1.3	32.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1145.0	1206.0	130.0	44.0	15.0		
	3200	BERN	20 GRF	1155.0	1205.1	78.0	41.0			
	8400	BERN	20 GRF	1155.0	1211.1	78.0	45.0			
	2695	ATHN	20 GRF	1156.6	1206.0	28.2	38.0			QL=6 ST=2 TYP=2
	8800	ATHN	20 GRF	1156.6	1206.8	30.9	30.0			QL=6 ST=2 TYP=2
	2695	SGMR	20 GRF	1201.1	1206.3	16.7	52.0			QL=6 ST=3 TYP=2
	8800	SGMR	20 GRF	1201.1	1206.6	18.2	32.0			QL=6 ST=3 TYP=2
	2800	OTTA	27AFRF	1415.0		435.0	8.2	7.5		
	2800	OTTA	24 R	1415.0	1435.0	20.0	8.2	4.1		
	2800	OTTA	24P R	1435.0		365.0	8.2			
	2800	OTTA	20 GRF	1445.0	1458.0	75.0	11.0	6.2		
	2800	OTTA	20 GRF	1950.0	2000.0	45.0	10.2	5.0		
	2800	OTTA	26 FAL	2040.0	2130.0	50.0	-8.2	-4.1		
	2800	OTTA	21 GRF	2140.0	2150.0	40.0	8.0	4.0		
	8800	SGMR	47 GB	2141.6	2141.8	.7	100.0			QL=6 ST=2 TYP=5
	2800	OTTA	1 S	2141.9	2142.0	1.5	9.6	4.4		
	2800	OTTA	3 S	2144.0	2146.0	4.0	10.2	5.1		
	2800	OTTA	1 S	2235.0	2237.0	5.0	7.2	3.6		
	8800	SGMR	8 S	2236.1	2236.3	1.0	27.0			QL=6 ST=2 TYP=3
	2695	PENT	20 GRF	2250.0	2315.0	120.0	5.6	3.2		
08	8800	LEAR	8 S	0017.8	0018.0	1.0	16.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0028.3	0028.6	3.8	13.0			QL=6 ST=2 TYP=3
	2695	PALE	4 S/F	0203.5	0203.6	22.6	40.0			QL=2 ST=2 TYP=3
	2695	MANI	4 S/F	0203.5	0205.1	8.0	90.3	30.1		
	8800	LEAR	47 GB	0247.0	0247.8	4.3	66.0			QL=6 ST=2 TYP=5
	2695	PALE	4 S/F	0247.3	0247.8	2.7	29.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	0247.3	0248.3	1.5	37.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Mean	Int	Remarks
08	2695	LEAR	4	S/F	0247.5	0247.8	4.8	28.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0519.0	0519.5	1.0	28.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0519.1	0519.5	1.7	13.0			QL=6 ST=2 TYP=3
	8400	BERN	3	S	0700.5	0701.1	3.5	30.0			
	8800	LEAR	8	S	0700.6	0701.1	1.4	30.0			QL=6 ST=2 TYP=3
	8400	BERN	22	GRF	0917.0	0932.0	120.0U	34.0			ONLY PAPER REC
	8800	LEAR	8	S	0920.3	0920.6	1.0	19.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0927.3	0927.3	1.2	33.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1146.0	1148.0	2.5	4.4	2.2		
	2800	OTTA	20	GRF	1240.0	1245.0	90.0	15.6	7.8		
	2800	OTTA	3	S	1542.0	1548.5	15.0	60.0	35.0		
	2695	ATHN	20	GRF	1542.6	1548.6	25.5	51.0			QL=6 ST=2 TYP=2
	3200	BERN	20	GRF	1543.0	1548.4	50.0U	48.0			
	8800	ATHN	20	GRF	1544.8	1549.3	24.8	28.0			QL=6 ST=2 TYP=2
	2695	SGMR	47	GB	1546.3	1548.3	6.2	61.0			QL=2 ST=3 TYP=5
	8800	SGMR	8	S	1548.1	1548.3	2.0	21.0			QL=6 ST=2 TYP=3
	2800	OTTA	30	PBI	1557.0	1557.0	380.0	22.0	10.0		
	2800	OTTA	2	S/F	1647.7	1648.5	6.0	4.8	2.4		
	2695	PENT	1	S	2328.5	2329.0	4.0	5.6	2.8		
	2695	LEAR	4	S/F	2329.1	2329.3	3.5	13.0			QL=6 ST=2 TYP=3
09	2695	PENT	20	GRF	0040.0	0050.0	40.0	3.2	1.6		
	8800	LEAR	4	S/F	0151.8	0153.0	2.8	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0204.6	0205.1	6.5	110.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0205.1	0205.6	5.9	40.0			QL=6 ST=2 TYP=3
	2695	MANI	4	S/F	0206.0	0207.6	4.3	48.9	16.3		
	3200	BERN	45	C	0646.6	0649.3	30.0U	44.0			
	2695	MANI	4	S/F	0647.0	0649.3	8.0	58.8	19.6		
	2695	LEAR	47	GB	0647.6	0649.3	8.5	54.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	0647.6	0649.8	19.5	53.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0648.3	0650.1	20.3	38.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0648.8	0650.0	9.8	29.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1251.0	1251.8	2.6	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	22	GRF	1251.0	1253.0	18.0	10.8	3.6		
	3200	BERN	4	S/F	1251.3	1252.4	7.0	18.0			ONLY PAPER REC
	2800	OTTA	4	S/F	1532.5	1534.2	2.5	30.0	11.0		
	3200	BERN	45	C	1533.4	1534.2	3.5	39.0			
	2800	OTTA	29	PBI	1535.0	1535.0	25.0	6.4	3.2		
	2800	OTTA	21	GRF	1710.0	1755.0	170.0	18.6	9.3		
	2800	OTTA	1	S	1753.0	1753.5	1.0	3.0	1.5		
	2800	OTTA	21	GRF	2125.0	2147.0	40.0	17.2	8.0		
	2800	OTTA	45	C	2130.8	2133.6	5.0	16.4	8.4		
	2695	PALE	8	S	2131.0	2131.3	1.6	20.0			QL=6 ST=2 TYP=3
	2695	SGMR	4	S/F	2131.5	2131.6	2.5	39.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	2133.8	2134.1	1.2	18.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	2134.0	2134.1	1.6	28.0			QL=6 ST=2 TYP=3
	2695	PENT	1	S	2312.0	2312.5	2.0	4.6	2.3		
10	2695	LEAR	4	S/F	0425.1	0425.6	2.5	15.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0516.0	0517.0	6.0	23.0			QL=6 ST=3 TYP=3
	3200	BERN	22	GRF	0516.5	0529.2	27.0	49.0			
	2695	LEAR	4	S/F	0516.6	0518.0	4.2	33.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0517.8	0518.1	3.0	10.0			QL=6 ST=2 TYP=3
	2695	LEAR	20	GRF	0521.8	0529.1	26.0	27.0			QL=6 ST=3 TYP=2
	8800	LEAR	20	GRF	0521.8	0532.5	24.5	29.0			QL=6 ST=2 TYP=2
	8800	ATHN	47	GB	0722.5	0723.3	1.8U	76.0			QL=6 ST=2 TYP=5
	8400	BERN	3	S	0722.8	0724.1	21.0	100.0			
	3200	BERN	20	GRF	0722.8	0724.2	21.0	37.0			
	8800	LEAR	47	GB	0723.6	0724.1	2.5	82.0			QL=6 ST=2 TYP=5
	2695	LEAR	8	S	0723.8	0724.3	1.5	17.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0723.8	0724.8	2.2	11.0	3.7		
	8400	BERN	4	S/F	1027.6	1028.5	19.0	382.0			
	8400	BERN	3	S	1138.1	1139.4	36.0	119.0			
	2800	OTTA	23	GRF	1315.0	1335.0	105.0	11.2			
	2695	ATHN	4	S/F	1318.3	1319.6	2.7	13.0			QL=6 ST=2 TYP=3
	8800	ATHN	8	S	1318.6	1319.1	1.0	21.0			QL=6 ST=2 TYP=3
	8400	BERN	4	S/F	1319.7	1320.9	13.0	29.0			
	2800	OTTA	4	S/F	1320.0	1321.0	2.0	10.0	5.0		
	2695	SGMR	8	S	1320.5	1320.8	1.3	31.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1320.6	1320.8	.4	17.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
10	2800	OTTA	1	S	1436.5	1438.0	6.0	3.6	1.6		
	2800	OTTA	21	GRF	1500.5	1525.0	60.0	5.4	3.6		
	2800	OTTA	1	S	1500.8	1501.2	2.0	8.0	4.0		
	2695	SGMR	8	S	1501.6	1502.6	1.0	26.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1650.0	1830.0	140.0	5.4	2.5		
	2800	OTTA	20	GRF	2005.0	2100.0	100.0	5.4	2.5		
	2695	PENT	22	GRF	2245.0	2305.0	195.0	11.0	6.6		
11	2695	LEAR	8	S	0844.0	0845.1	1.8	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0844.8	0845.0	.5	7.0			QL=6 ST=2 TYP=3
	2800	OTTA	3	S	1138.0	1139.8	12.0	350.0	77.0		
	2695	SGMR	47	GB	1138.8	1139.6	9.8	260.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1139.1	1139.3	2.0	61.0			QL=6 ST=2 TYP=5
	2800	OTTA	29	PBI	1150.0	1150.0	25.0	14.6	4.0		
	2800	OTTA	20	GRF	1324.0	1328.0	21.0	14.8	7.0		
	2800	OTTA	26A	FAL	1324.0	1500.0	96.0	-5.4			
	2800	OTTA	31A	ABS	1345.0	1420.0	73.0	-8.2	-5.8		
	2800	OTTA	1	S	1439.0	1439.5	1.0	2.0	1.0		
	2800	OTTA	21	GRF	1650.0	1740.0	120.0	8.2	4.1		
	2800	OTTA	1	S	1732.0	1735.0	7.0	4.0	1.8		
	2800	OTTA	20	GRF	1812.0	1815.0	20.0	3.4	1.7		
	2800	OTTA	1	S	2023.0	2026.0	6.5	3.4	1.8		
12	8400	BERN	3	S	0815.6	0816.6	3.0	23.0			
	8800	LEAR	8	S	0816.6	0816.6	1.4	18.0			QL=6 ST=2 TYP=3
	2800	OTTA	23	GRF	1620.0	1720.0	120.0	5.2	2.3		
	2800	OTTA	2	S/F	1716.9	1717.0	1.2	2.4	1.2		
	2800	OTTA	20	GRF	1940.0	1948.0	35.0	3.6	2.0		
13	8800	PALE	47	GB	0008.1	0008.1	1.0	89.0			QL=5 ST=2 TYP=5
	2695	PENT	1	S	0053.5	0055.0	4.5	5.4	2.8		
	8800	PALE	8	S	0239.3	0240.3	1.0	17.0			QL=5 ST=2 TYP=3
	8400	BERN	3	S	0737.5	0738.4	14.0	94.0			
	2695	LEAR	4	S/F	0737.8	0738.5	5.5	31.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0738.0	0738.3	3.1	86.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	1330.0	1335.0	50.0	6.8	3.4		
	2800	OTTA	3	S	1342.0	1343.5	3.0	26.8	9.0		
	8400	BERN	46	C	1342.5	1343.3	5.0	39.0			
	8800	SGMR	8	S	1343.0	1343.3	1.0	34.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1343.3	1343.5	.7	39.0			QL=6 ST=2 TYP=3
	2800	OTTA	29	PBI	1345.0	1345.0	7.0	4.0	2.2		
	2800	OTTA	21	GRF	1530.0	1620.0	210.0	4.2	2.4		
	2800	OTTA	20	GRF	1535.0	1541.0	15.0	2.2	1.0		
	2800	OTTA	4	S/F	1734.0	1737.0	4.0	10.8	2.8		
	2800	OTTA	45	C	1814.0	1815.3	14.0	22.8	5.8		
	2695	PALE	4	S/F	1814.3	1815.1	2.8	29.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	1818.3	1818.5	1.2	18.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1818.8	1819.6	.8	19.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1906.0	1907.0	3.0	3.2	1.6		
	2695	PENT	45	C	2259.0	2259.8	9.0	125.0	17.2		
	2695	SGMR	47	GB	2259.3	2259.6	.5	80.0			QL=4 ST=2 TYP=5
	2695	PALE	47	GB	2259.3	2259.6	2.0	110.0			QL=6 ST=2 TYP=5
	8800	PALE	8	S	2259.5	2259.6	1.1	28.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	2302.8	2304.1	2.0	76.0			QL=6 ST=2 TYP=5
	2695	PALE	8	S	2304.1	2304.3	.7	20.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	2304.8	2304.8	2.8	76.0			QL=6 ST=2 TYP=5
	2695	PENT	4	S/F	2319.0	2320.0	6.5	14.2	4.8		
	2695	PENT	20	GRF	2342.0	0025.0	120.0	4.6	2.3		
14	2695	PALE	47	GB	0241.1	0242.6	6.0	100.0			QL=6 ST=2 TYP=5
	8800	PALE	8	S	0242.3	0242.5	2.0	43.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0400.5	0400.8	5.5	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0402.0	0402.6	6.6	13.0			QL=6 ST=2 TYP=3
	8400	BERN	47	GB	0506.6	0507.5	12.0	1927.0			
	8800	LEAR	49	GB	0506.6	0507.5	10.0	2000.0			QL=6 ST=3 TYP=7
	2695	LEAR	49	GB	0506.6	0507.6	14.9	880.0			QL=6 ST=3 TYP=7
	2800	OTTA	20	GRF	1310.0	1350.0	90.0	7.4	3.8		
	2695	PENT	21	GRF	2240.0	2343.0	120.0	6.6	3.0		
	2695	PENT	3	S	2338.0	2338.7	1.0	12.6	6.0		
	2695	LEAR	8	S	2338.5	2338.6	1.0	17.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
14	2695	PENT	1	S	2358.0	2359.5	3.0	4.0	1.8		
15	2800	OTTA	20	GRF	1348.0	1352.0	20.0	2.4			
	2800	OTTA	20	GRF	1520.0	1540.0	70.0	3.4	1.7		
	2800	OTTA	1	S	1751.0	1752.0	2.0	2.6	1.3		
	2695	PENT	1	S	2253.0	2255.0	5.0	2.2	1.1		
16	2695	LEAR	4	S/F	0203.6	0204.1	2.2	27.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	0204.0	0204.1	1.1	23.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	0204.0	0204.5	3.8	50.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0204.1	0204.6	4.2	52.0			QL=6 ST=2 TYP=5
	2800	OTTA	20	GRF	1915.0	1918.0	17.0	3.0	1.5		
	8800	SGMR	49	GB	2016.6	2017.1	1.5	1100.0			QL=6 ST=3 TYP=6
	2800	OTTA	21	GRF	2115.0	2140.0	90.0	4.0	1.8		
	2800	OTTA	20	GRF	2150.0	2151.5	15.0	3.4	1.7		
17	8800	PALE	8	S	0058.5	0058.8	1.0	16.0			QL=6 ST=3 TYP=3
	2695	LEAR	8	S	0058.6	0058.8	1.2	27.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	0058.6	0058.8	1.2	20.0			QL=6 ST=2 TYP=3
	2695	PENT	3	S	0058.7	0058.9	1.3	28.0	9.4		
	8800	LEAR	8	S	0058.8	0058.8	1.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	45	C	1516.0	1517.7	6.5	17.0	4.2		
	2800	OTTA	20	GRF	1600.0	1622.0	60.0	2.6	1.2		
	2800	OTTA	45	C	1743.7	1744.9	5.3	30.0	7.7		
	2695	PALE	4	S/F	1744.1	1744.8	2.2	37.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	1744.3	1744.8	1.0	16.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1744.6	1744.8	.2	18.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1745.1	1745.1	.2	37.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	1747.3	1747.6	1.5	58.0			QL=6 ST=2 TYP=5
	8800	SGMR	8	S	1747.5	1747.8	.5	46.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	1747.5	1747.8	1.3	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	29	PBI	1749.0	1749.0	95.0	3.4			
	2800	OTTA	1	S	2153.0	2153.5	1.5	2.8	1.4		
18	2695	PENT	20	GRF	0010.0	0110.0	90.0	5.2	2.6		
	8800	LEAR	49	GB	0403.1	0403.3	.9	6.0			QL=6 ST=2 TYP=6
	2800	OTTA	3	S	1116.2	1117.1	2.0	19.0	7.8		
	8400	BERN	4	S/F	1116.4	1117.2	3.0	20.0			
	8800	ATHN	8	S	1116.5	1117.1	1.8	13.0			QL=6 ST=2 TYP=3
	2695	ATHN	8	S	1116.6	1117.1	1.7	17.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1117.1	1117.5	1.2	42.0			QL=6 ST=2 TYP=3
	2800	OTTA	8	S	1326.2	1326.4	.8	2.8	1.4		
	2800	OTTA	27A	RF	1340.0		370.0	3.0	2.8		
	2800	OTTA	24	R	1340.0	1420.0	40.0	3.0	1.5		
	2800	OTTA	24P	R	1420.0		310.0	.3			
	2800	OTTA	20	GRF	1630.0	1710.0	70.0	3.2	1.6		
	2800	OTTA	26	FAL	1930.0	1950.0	20.0	-2.0	-1.0		
	2800	OTTA	22	GRF	2010.0	2230.0	220.0	5.8	2.9		
19	8800	LEAR	8	S	0048.0	0048.0	.8	17.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0048.0	0048.0	.8	5.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0411.1	0411.6	.9	9.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0411.3	0411.3	1.2	47.0			QL=6 ST=2 TYP=3
	2695	LEAR	20	GRF	0610.0	0612.8	14.0	11.0			QL=6 ST=2 TYP=2
	8800	LEAR	20	GRF	0610.0	0612.8	14.0	16.0			QL=6 ST=2 TYP=2
	2800	OTTA	20	GRF	1130.0	1220.0	210.0	6.6	3.3		
	8400	BERN	45	C	1545.0	1550.2	9.0	25.0			
	2800	OTTA	21	GRF	1545.0	1551.0	15.0	3.8	1.9		
	2800	OTTA	1	S	1545.2	1546.2	2.0	4.0	1.8		
	2800	OTTA	8	S	1550.0	1550.1	.8	5.2	2.6		
20	2695	SGMR	8	S	1239.6	1239.8	1.2	18.0			QL=6 ST=2 TYP=3
	2695	SGMR	4	S/F	1411.1	1411.6	4.7	21.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1530.0	1620.0	90.0	2.0	1.0		
	2800	OTTA	21	GRF	1705.0	1830.0	120.0	2.0	1.0		
	2800	OTTA	40	F	1746.0	1753.4	13.0	100.0			
	2695	PALE	47	GB	1746.6	1748.0	2.5	51.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	1752.3	1753.3	2.7	82.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	2016.5	2017.0	2.0	10.8	3.6		
21	2695	PENT	21	GRF	0015.0	0050.0	80.0D	8.6			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
21	2695	PENT	4 S/F	0110.0	0115.0	9.0	485.0			
	2695	LEAR	47 GB	0112.8	0115.0	6.3	360.0			QL=6 ST=2 TYP=5
	2695	PENT	4 S/F	0121.7	0122.2	2.0	28.0	7.2		
	2695	PALE	8 S	0122.0	0122.1	1.1	21.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	0122.0	0122.1	1.0	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1210.0	1220.0	50.0	2.6	1.3		
	2800	OTTA	20 GRF	1335.0	1410.0	90.0	4.4	2.2		
	2800	OTTA	20 GRF	1510.0	1520.0	30.0	2.4	1.2		
23	2800	OTTA	240 R	2145.0	2200.0	15.0	2.4	1.2		
24	8800	LEAR	4 S/F	0018.1	0020.6	3.4	11.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1430.0	1445.0	30.0	2.0	1.0		
25	8800	LEAR	4 S/F	0451.1	0452.8	2.7	10.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0452.5	0452.6	2.5	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	240 R	1520.0	1545.0	25.0	3.0	1.2		
	2800	OTTA	240AR	1920.0	1950.0	30.0	2.4	1.2		
	2800	OTTA	20 GRF	1932.0	1938.0	16.0	4.0	2.0		
	2800	OTTA	240 R	2150.0	2200.0	10.0	2.6	1.3		
	2695	PENT	20 GRF	2300.0	2315.0	50.0	3.8	2.0		
26	8400	BERN	46 C	1424.8	1426.9	17.0	133.0			
	2800	OTTA	21 GRF	1425.0	1429.0	20.0	3.4	1.7		
	2800	OTTA	2 S/F	1426.2	1426.3	1.8	6.2	3.2		
	8800	SGMR	47 GB	1426.3	1426.8	2.2	100.0			QL=6 ST=2 TYP=5
	2800	OTTA	240 R	1510.0	1515.0	5.0	2.4	1.2		
	2800	OTTA	20 GRF	1720.0	1855.0	130.0	4.2	2.1		
	2800	OTTA	240 R	1950.0	2025.0	35.0	3.6	1.8		
	2800	OTTA	1 S	2106.9	2107.1	1.0	6.6	3.3		
	2800	OTTA	240 R	2220.0	2230.0	10.0	3.0	1.5		
	2695	PENT	21 GRF	2245.0	2310.0	70.0	7.6	2.8		
	2695	PENT	1 S	2301.0	2302.0	2.0	4.6	2.3		
	8800	LEAR	47 GB	2301.1	2301.6	5.2	53.0			QL=5 ST=2 TYP=5
27	2695	PENT	3 S	0138.7	0139.3	2.0	20.0	10.0		
	8800	LEAR	47 GB	0138.8	0139.3	9.3	370.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	0139.1	0139.6	3.5	27.0			QL=6 ST=2 TYP=3
	8800	LEAR	47 GB	0324.8	0325.8	25.7	169.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	0325.3	0325.8	3.5	27.0			QL=6 ST=2 TYP=3
	8800	LEAR	47 GB	0542.5	0549.1	40.3	60.0			QL=6 ST=3 TYP=5
	2695	LEAR	4 S/F	0545.3	0549.6	12.5	18.0			QL=6 ST=3 TYP=3
	8400	BERN	3 S	0547.0	0549.3	15.0	73.0			
	8800	ATHN	4 S/F	0548.3	0549.6	3.3	32.0			QL=6 ST=2 TYP=3
	2695	ATHN	4 S/F	0549.1	0549.6	4.4	11.0			QL=6 ST=2 TYP=3
	8400	BERN	3 S	0911.0	0912.7	16.0	69.0			
	2695	LEAR	4 S/F	0911.8	0912.8	3.0	33.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0912.0	0912.8	3.0	50.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1205.0	1240.0	115.0	5.6	2.6		
	8800	SGMR	4 S/F	1318.8	1319.1	4.5	27.0			QL=6 ST=2 TYP=3
	2800	OTTA	27AFRF	1520.0		250.0	3.6	3.1		
	2800	OTTA	24 R	1520.0	1550.0	30.0	3.6	1.5		
	2800	OTTA	24P R	1550.0		180.0	3.6			
	2800	OTTA	20 GRF	1755.0	1805.0	20.0	2.8	1.4		
	2800	OTTA	26 FAL	1850.0	1930.0	40.0	-3.6	-1.5		
	8800	SGMR	8 S	2041.3	2041.3	1.2	22.0			QL=6 ST=2 TYP=3
28	8800	LEAR	4 S/F	0641.8	0644.0	7.2	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0642.1	0643.0	6.7	10.0			QL=6 ST=2 TYP=3
	2800	OTTA	27A RF	1145.0		190.0	3.6	3.3		
	2800	OTTA	24 R	1145.0	1155.0	10.0	3.6	1.8		
	2800	OTTA	24P R	1155.0		160.0	3.6			
	2800	OTTA	2 S/F	1234.0	1235.6	1.5	5.8	2.9		
	2800	OTTA	26 FAL	1435.0	1455.0	20.0	-3.6	-1.8		
	2800	OTTA	20 GRF	1510.0	1530.0	120.0	3.6	1.8		
	2800	OTTA	1 S	1743.0	1744.0	3.0	5.2	2.0		
	2800	OTTA	45 C	1802.0	1803.2	2.5	8.0	2.6		
	2800	OTTA	240 R	1855.0	1925.0	30.0	2.8	1.4		
	2800	OTTA	21 GRF	2125.0	2245.0	110.0	4.6	2.8		
	2800	OTTA	45 C	2149.0	2150.8	3.0	10.4	3.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
28	2695	PENT	45	C	2258.2	2258.7	3.5	16.0	4.4		
29	2800	OTTA	27A	RF	1450.0		430.0	3.2	2.7		
	2800	OTTA	24	R	1450.0	1550.0	60.0	3.2	1.6		
	2800	OTTA	24P	R	1550.0		290.0	3.2			
	2800	OTTA	21	GRF	1720.0	1800.0	140.0	7.2	3.6		
	8800	PALE	4	S/F	1741.8	1744.3	3.8	27.0			QL=6 ST=2 TYP=3
	┌2800	OTTA	40	F	1743.7	1749.5	10.0	5.6			
	└8800	PALE	4	S/F	1746.8	1748.8	3.0	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	26	FAL	2040.0	2200.0	80.0	-3.2	-1.6		
30	2695	LEAR	47	GB	0419.5	0419.8	1.1	80.0			QL=6 ST=2 TYP=5
	2800	OTTA	20	GRF	1220.0	1300.0	130.0	3.6	1.8		
	2800	OTTA	20	GRF	1950.0	1954.0	37.0	4.0	1.9		
31	┌8800	LEAR	4	S/F	0144.3	0148.8	5.3	11.0			QL=6 ST=2 TYP=3
	├2695	LEAR	47	GB	0147.1	0148.8	3.2	80.0			QL=6 ST=2 TYP=5
	├2695	PENT	40	F	0148.0	0148.5	1.0	65.0			
	└2695	PALE	47	GB	0148.0	0148.8	1.8	74.0			QL=6 ST=2 TYP=5
	┌8800	PALE	8	S	0156.6	0157.1	1.2	16.0			QL=6 ST=2 TYP=3
	└2695	PALE	47	GB	0156.6	0157.3	3.0	82.0			QL=6 ST=2 TYP=5
	┌2695	LEAR	20	GRF	0508.8	0520.6	18.7	39.0			QL=6 ST=2 TYP=2
	└8800	LEAR	4	S/F	0518.8	0520.6	8.7	33.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1220.0	1250.0	95.0	2.8	1.6		
	2800	OTTA	23	GRF	1600.0	1955.0	490.0	20.0			
	┌2800	OTTA	1	S	1721.0	1723.0	7.5	7.0	3.2		
	├2695	SGMR	8	S	1721.1	1723.1	2.0	13.0			QL=6 ST=2 TYP=3
	└8800	SGMR	4	S/F	1721.1	1723.1	5.9	26.0			QL=6 ST=2 TYP=3

Observatories:

BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

Explanation of Type Code:

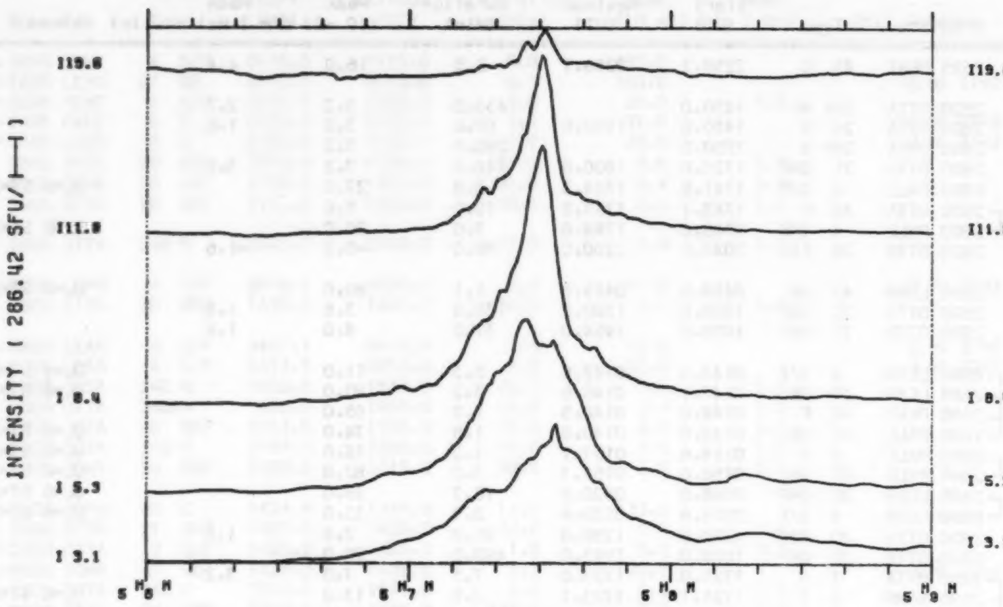
1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset on Noise Storm
2 Simple 1F	8 Spike	25 Rise A	31 Post Burst Decrease	44 Noise Storm In Progress
3 Simple 2	20 Simple 3	26 Fall	32 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple 3F	28 Precursor	41 Group of Bursts	47 Great Burstise Storm
6 Minor	23 Simple 3AF	29 Post Burst Increase	42 Series of Bursts	48 Major
				49 Major +

SELECTED SOLAR NOISE BURSTS

AUGUST 14-26, 1982

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND

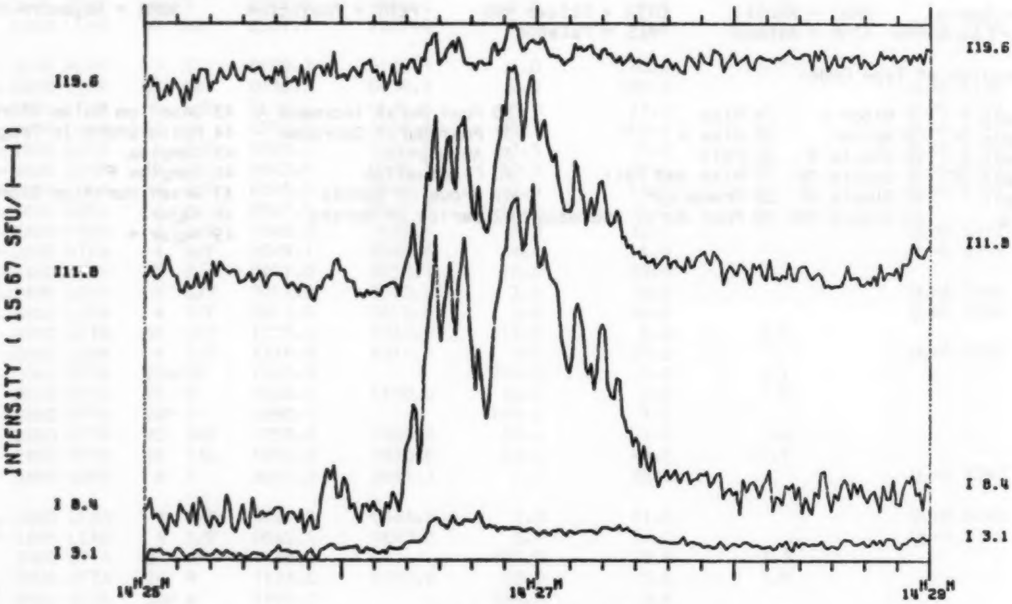
INTEGRATION TIME= 500 MS



UT ON AUG. 14 1982

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND

INTEGRATION TIME= 800 MS



UT ON AUG. 26 1982

PIONEER XII (VENUS ORBITER)

Solar Wind

AUGUST 1982

DATE Aug '82	TIME (UT)	ESV (°)	U_{H+} (km/s)	N_{H+} (H^+/cc)	T_{H+} ($\times 10^6$ K)
1	0410	119.	591.	8.1	0.327
2	0559		483.	9.4	.145
3	0350		439.	20.3	.156
4	0419		559.	15.7	.527
5	0516		461.	22.7	.161
6	0437		461.	18.5	.232
7	0343		430.	28.6	.135
8	0359		401.	41.1	.139
9	0319		421.	29.	.088
10	0320		687.	13.5	.516
11	0709		448.	17.9	.077
12	0404		615.	10.2	.243
13	0237		486.	13.7	.117
14	0549		494.	20.	.19
15	0643	128.	432.	22.9	.11
16	0328		350.	13.	.095
17	0346		476.	14.9	.373
18	0426		445.	17.1	.217
19	1511		372.	25.8	.016
20	0611		378.	42.8	.019
21	0300		372.	7.8	.02
22	0600		359.	13.6	.074
23	0342		340.	29.1	.072
24	0404		272.	86.3	.019
25	1549		327.	39.	.039
26	1717		365.	33.8	.112
27	1808		575.	5.6	.439
28	0736		482.	6.1	.175
29	0543		450.	20.5	.179
30	0304		397.	20.1	.06
31	0433		503.	10.8	.2

INFERRED IP MAGNETIC FIELD

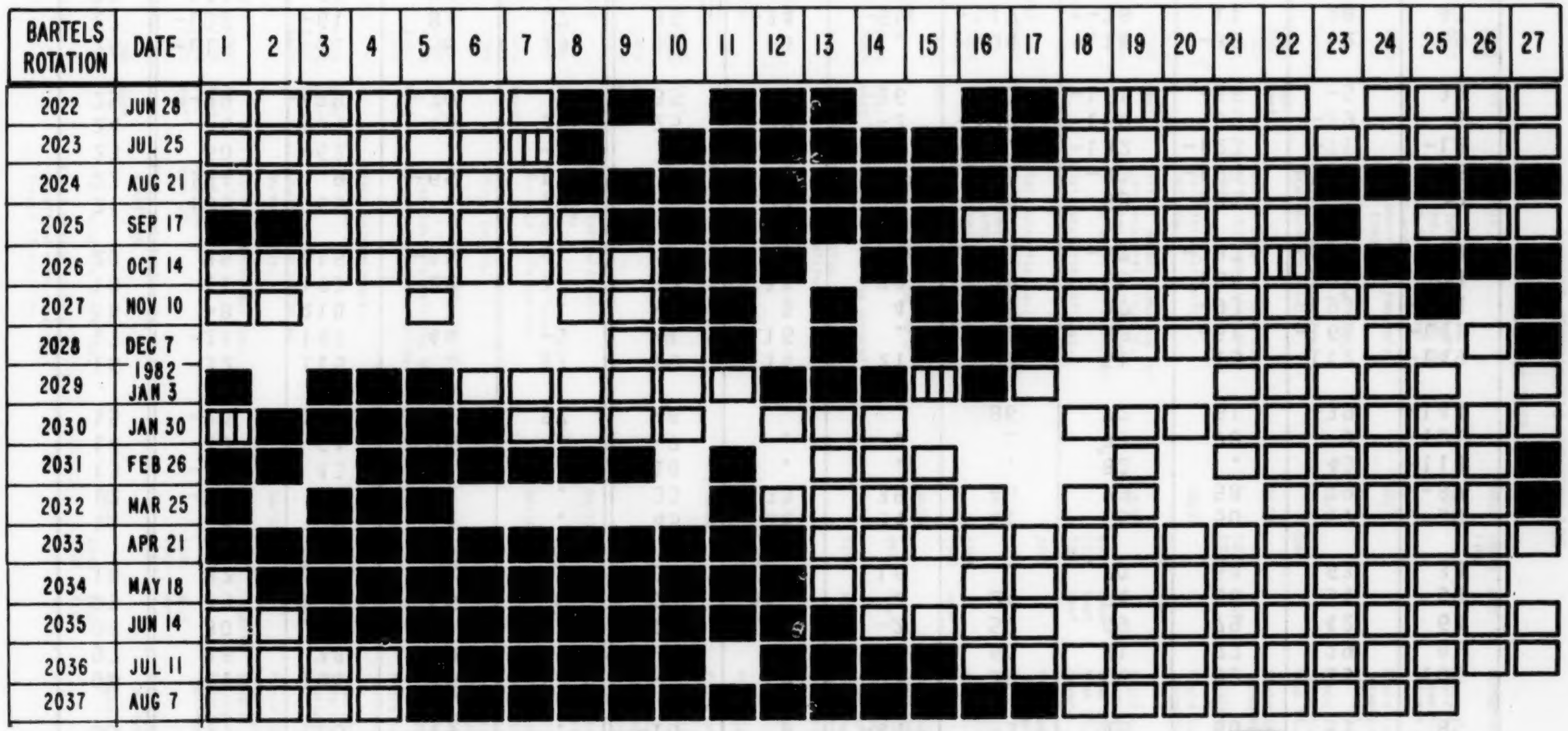
BARTELS ROTATION	DATE	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27	
2017	FEB 18					AT		TA																		TA			TA				*														AT			TA				TA	
2018	MAR 17														AT												-										TA							AT			-	-				TA		AT	
2019	APR 13	TA			-		-		-											-								TA									*	AT		-				-				-	AT			-		-	
2020	MAY 10	-	-	-	-	-	TA	AT		TA				-				TA						TA																			*		*										
2021	JUN 6				*															AT								TA						AT					-	-	-	-	-		-		-		-		-		-		-
2022	JUL 3		-		-		-		-		-	-	-		-	-	-	-	-		-		-	-	-	-	-	-	-	-	-		-		-		-		-		-	-	-	-	-	-	-	-	-	-	-		-		-
2023	JUL 30		-	-	-	-	-		-		-		-		-	-	-		-		-		-		-		-		-	-	-	-	-		-	TA	-	TA	-	-	-		-		-		-		-	AT	-	-	-		-
2024	AUG 26	-	-		-		-	TA	-	TA	-		-	TA	-		-		-	TA	-		-		-		-		-	TA	-		-	TA	-		-		-		-		-	TA	-		-		-		-		-		-
2025	SEP 22		-		-		-		-		-		-		-	AT	-	TA	-		-		-		-	TA	-		-	TA	-	TA	-	TA	-		-	AT	-		-	TA	-	AT	-	TA	-	AT	-	TA	-	TA	-	TA	-
2026	OCT 19	AT	-	TA	-	TA	-		-		-		-		-	TA	-	TA	-		-	TA	-		-		-		-		-	TA	-		-		-		-		-		-	AT	-	TA	-		-		-		-		-
2027	NOV 15		-		-		-	AT	-	AT	-		-		-		-		-	AT	-		-		-		-		-		-	TA	-		-	TA	-	TA	-	AT	-		-		-		-		-		-	AT	-		-
2028	DEC 12	TA	-		-		-		-	AT	-	AT	-		-		-	AT	-	TA	-		-		-		-		-		-		-	AT	-		-	AT	-	TA	-		-		-		-		-	TA	-		-	-	-
2029	1982 JAN 8		-		-		-		-		-	TA	-	TA	-		-		-		-		-		-		-	TA	-		-		-	TA	-		-		-		-	AT	-		-	-	-	-	-	AT	-		-		-
2030	FEB 4		-		-		-	TA	-	TA	-	TA	-	TA	-		-		-	TA	-		-		-		-		-		-	TA	-		-		-		-		-		-		-		-	TA	-		-		-	TA	-
2031	MAR 3		-		-		-		-		-	TA	-	TA	-		-	TA	-	TA	-		-	TA	-		-		-	TA	-		-		-		-	TA	-	TA	-		-		-		-		-		-		-	AT	-
2032	MAR 30		-	TA	-		-	TA	-		-		-		-		-		-		-	TA	-		-		-	-	-		-		-	AT	-	TA	-		-	TA	-		-		-		-		-		-		-		-
2033	APR 26	-	-	AT	-		-		-		-	-	-		-	TA	-	TA	-		-		-		-		-	-	-		-		-		-		-		-		-		-		-		-		-	AT	-	AT	-		-
2034	MAY 23		-		-		-	AT	-	-	-	TA	-		-		-		-		-	-	-	AT	-		-	-	-		-		-		-		-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	TA	-
2035	JUN 19		-		-		-		-		-		-		-		-	-	-	-	-		-		-	TA	-		-	-	-		-	-	-		-		-		-	-	-		-	TA	-		-		-		-		-
2036	JUL 16		-	-	-		-	-	-	-	-	TA	-		-		-		-		-	AT	-		-	-	-		-	AT	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-	-	-		-
2037	AUG 12		-		-		-	-	-		-		-	-	-		-	TA	-		-	-	-	TA	-	TA	-	TA	-		-	-	-		-	TA	-		-	-	-														

▒ = definitely towards the sun ☐ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: [open box] = FIELD >2μT, [hatched box] = -2μT ≤FIELD ≤2μT, [filled box] = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1981 | 1982

day	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.
01	-134	-27	94	41	15	-20	-19	.	-6	.	.	49
02	-87	11	82	34	-6	-44	-9	.	-6	33	85	19
03	-56	70	55	49	-17	-29	-20	.	23	38	75	19
04	-21	104	-1	-3	.	-3	-39	-17	43	54	71	52
05	-7	115	-19	.	-10	9	-44	3	48	80	53	85
06	11	104	-36	-12	-5	19	-21	38	16	82	35	105
07	26	28	-29	.	-4	43	.	60	41	77	29	81
08	30	25	-23	.	25	64	-2	57	69	79	42	63
09	33	-7	-16	.	23	.	.	24	74	68	54	59
10	32	.	11	.	36	15	16	.	70	54	63	33
11	4	8	34	.	45	24	34	61	65	50	87	-30
12	-29	32	.	.	35	33	35	46	79	58	79	-87
13	-47	43	.	.	16	.	.	.	82	.	43	-118
14	-37	64	105	.	-7	.	.	.	77	78	9	-121
15	-24	103	.	57	-6	.	.	86	72	51	-39	-144
16	-32	115	.	17	-12	14	21	93	51	-13	-112	-149
17	-24	167	48	-5	-1	16	.	71	38	-51	-164	-141
18	-8	218	3	.	-3	5	4	46	27	-93	-193	-124
19	11	193	-28	-37	33	15	20	28	-15	-184	-201	-93
20	85	115	-45	.	.	27	31	-6	-57	-237	-189	-59
21	135	65	.	-39	.	38	25	-38	-68	-225	.	-32
22	124	9	-65	-11	.	48	22	-78	-93	-170	-128	-16
23	60	-62	.	-2	9	41	14	-113	-132	-123	-71	-12
24	6	-107	-43	35	25	28	-2	-107	-158	-69	-29	5
25	-79	-128	-20	4	35	10	-26	-93	-151	-56	-5	32
26	-115	.	58	39	42	-3	.	-104	-118	-39	12	39
27	-138	-61	83	17	36	-34	-61	-117	-26	11	28	47
28	-144	-60	96	29	.	.	-56	-122	-26	37	38	46
29	-121	-19	59	.	15		-53	-77	-10	46	48	25
30	-75	67	55	24	0		.	-26	19	59	61	39
31		87		.	-10		.		46		53	64

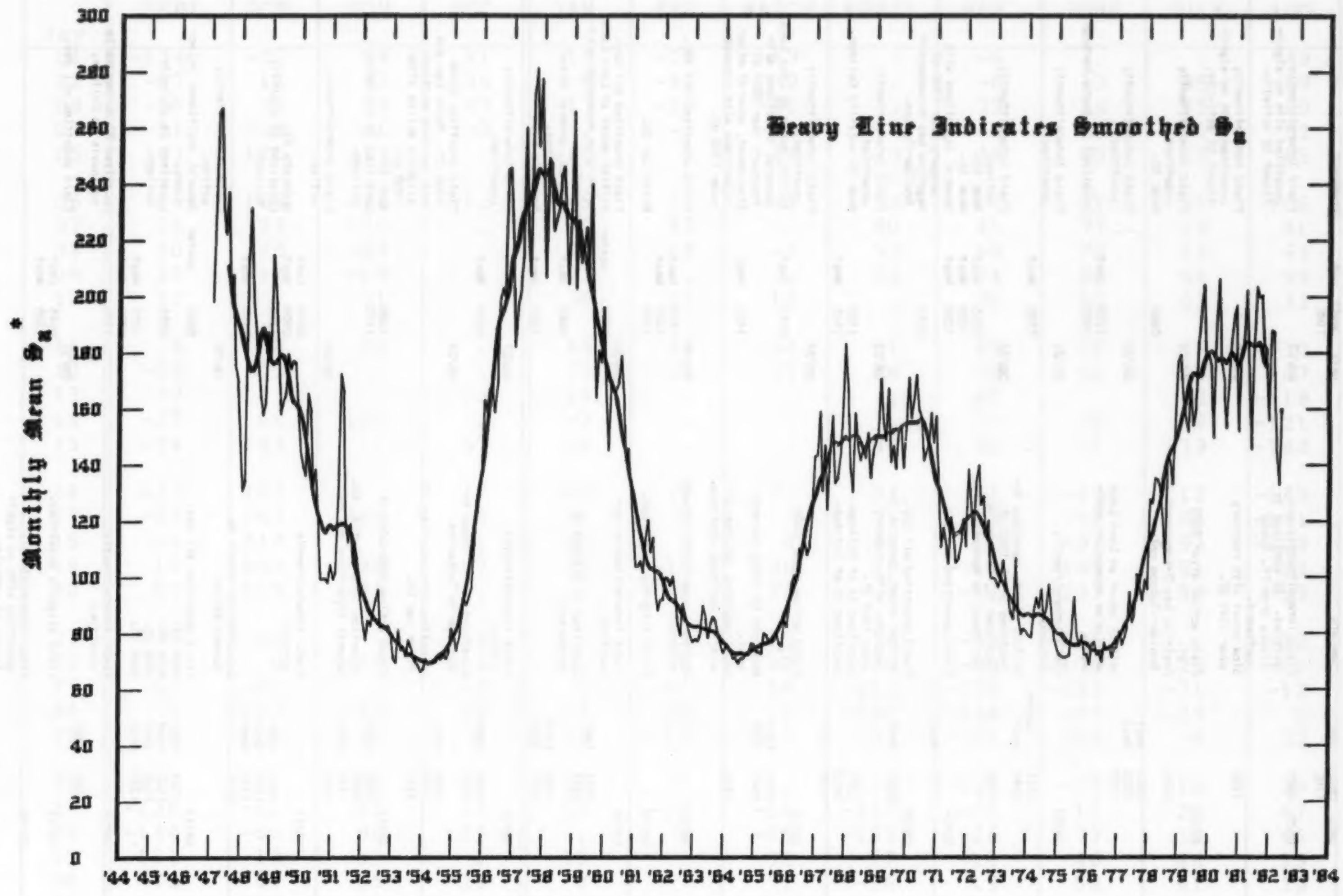
DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

August 1982

DATE	ONSET TIME	DIR	COMMENTS
08/01	0905		Field intermittently unsettled. SS confined to Alaska from Ft. Yukon southward.
	1200		Slow onset with recovery near 1345 UT.
08/02			Field active after 0900 UT.
	0410		Positive bay D-component Boulder-Tucson only.
	0910	West	
	1000	West	
	1420		Initial onset at Lynn Lake with slow expansion westward.
08/03			Field intermittently active.
	0515	center	
	0840	West	Initial onset, numerous injections until 1600 UT.
	1750		Localized SS, College to Ft. Yukon to Norman Wells.
08/04			Field unsettled all day.
	1125	West	
08/05			Field unsettled all day.
	0755	West	Initial onset, several injections with recovery near 1000 UT.
	1035		Localized SS at College.
	1610		Localized SS at College.
	1630	West	
08/06			Field active after 0900 UT.
	0535	East	
	0945	West	Moderate SS along auroral oval.
	1835		Small positive impulse all mid/low latitude stations.
08/07			Magstorm conditions through 1700 UT.
08/08			Field slightly unsettled.
08/09			Field intermittently unsettled.
	0625	East	
	0845		Localized SS College to Anchorage.
	0905	East	
	1515	West	
08/10			Field intermittently active.
	0735	West	
	0830		Localized SS Ft. Yukon to College to Talkeetna.
	1440	West	
	1535		Injection into existing SS
	2215		Polar cap SS.
08/11			Field active 0900-2000 UT.
	0900	West	
	0930		Injection into existing SS.
	1410	West	Several injections follow.
	1845		
08/12			Field intermittently active.
	0525	East	
	1020	West	
	1345	West	
	1615		Localized SS Inuvik to Norman Wells.
08/13			Field unsettled all day.
	0725	West	Weak SS.
	1105	West	Weak SS.
	1145	West	Weak SS.
	1330	West	Weak SS.
08/14			Field intermittently unsettled.
	1040	West	
08/15			Field slightly unsettled.
08/16			Field intermittently unsettled with no significant SS activity.
08/17			Field intermittently unsettled with no significant SS activity.
08/18			Field intermittently unsettled with no significant SS activity.
08/19			Field intermittently unsettled.
	0845		Weak SS.
08/20			Field intermittently unsettled.
	1225	West	
	1920		Localized SS Sachs Harbour.
08/21			Field intermittently unsettled.
	1500	West	
08/22			Field intermittently active.
	0905	West	Weak SS.
	1035	West	Weak SS.
	1250	West	Several injections with recovery near 1700 UT.
	2015		Negative bay H-component Boulder-Tucson.
08/23			Field intermittently unsettled.
	1355		Weak SS vicinity College.
	1545	West	
08/24			Field intermittently unsettled.
	0510	East	Initial onset at Lynn Lake, several injections with recovery near 0800 UT.
	1430	West	Slow onset, several minor injections with recovery near 1700 UT.
08/25			Field unsettled all day.
	0550	West	
	1005	West	
	2255		Polar Cap SS.
08/26			Field unsettled all day.
	0550	center	Initial onset at Lynn Lake with slow expansion westward.
	0845	West	Weak SS, several minor injections.
	1200	West	Moderate SS.
08/27			Field intermittently unsettled.
	0805	West	
08/28			Field unsettled after 1000 UT. Polar Cap and mid latitude stations slightly active after 1900 UT.
	1000		Weak SS.
	1105		Localized SS vicinity College.
08/29			Field intermittently active.
	0410	East	
	0800	West	Moderate SS.
	1210		Localized SS vicinity College.
	1405	West	
08/30			Field intermittently active.
	0600	center	Several additional injections.
	0855		Localized SS vicinity College.
	1055	West	
	1500	West	
	1740		Localized SS Norman Wells to Inuvik to College.
08/31			Field unsettled all day.
	0645	East	
	1205	West	

Monthly Mean Ottawa 10.7 cm Solar Radio Flux
February 1947 – June 1982



* Solar Flux Units (10^{-22} W/m^2 Hz) Adjusted to 1 A.U., Series D.

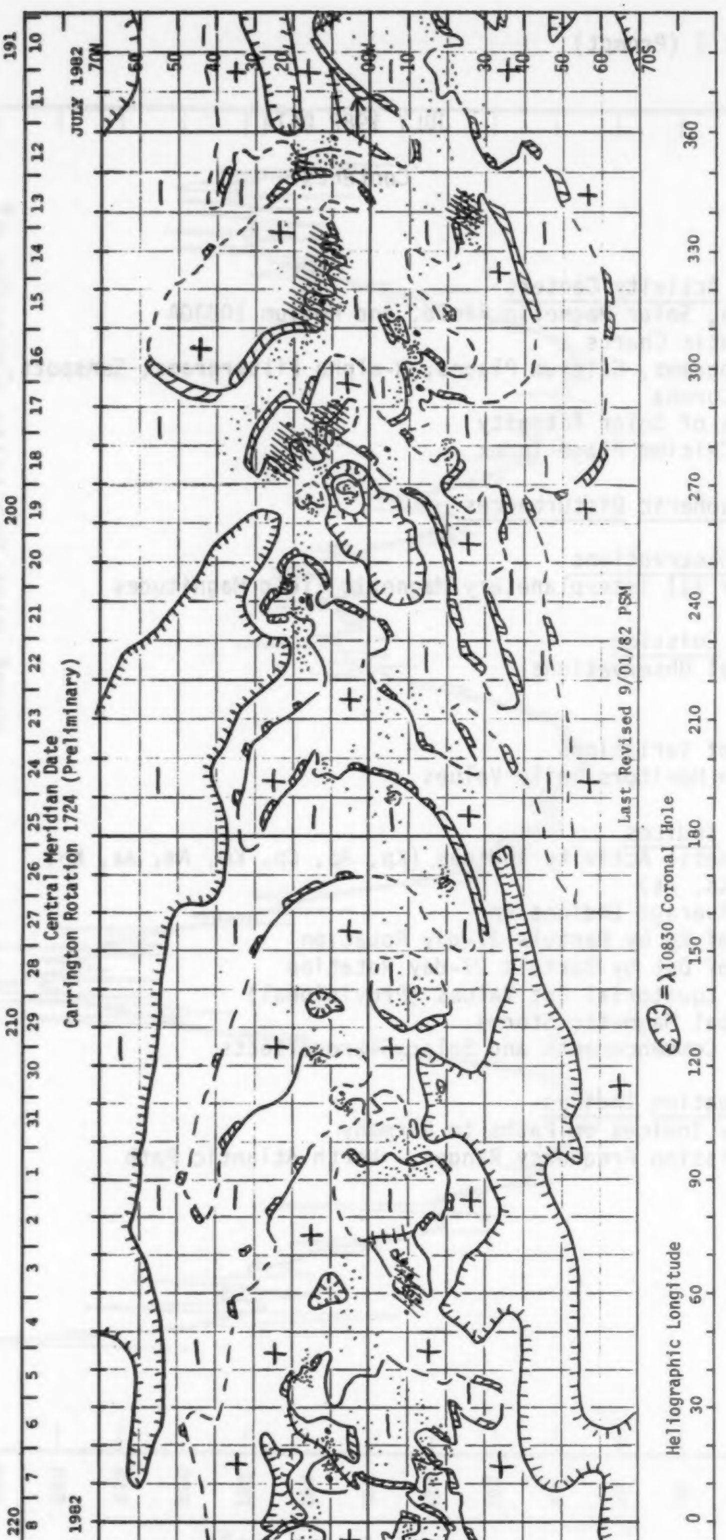
JULY 1982 DATA

Contents

	Page
Daily Solar Activity Centers	
H-alpha, Solar Magnetic Field, and Helium 10830A Synoptic Charts	46-49
Magnetograms, Calcium Plages, H-alpha Filtergrams, Sunspots, and Corona	50-111
Regions of Solar Activity	112-122
Daily Calcium Plage Index	122
Sudden Ionospheric Disturbances	123-128
Spacecraft Observations	
Pioneer XII Interplanetary Magnetic Field Magnitudes	129
Solar Radio Emission	
Spectral Observations	130-147
Cosmic Rays	
Chart of Variations	148-152
Neutron Monitors Daily Values	153
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Ap, Cp, Km, Am, aa, Kn, An, Ks, As)	154
Daily Average Indices Ap	155
Chart of Kp by Bartels 27-day Rotation	156
Chart of Dst by Bartels 27-day Rotation	157
Hourly Equatorial Dst Values (Provisional)	158
Principal Magnetic Storms	159
Sudden Commencements and Solar Flare Effects	160
Radio Propagation Indices	
Quality Indices on Paths to Germany	161
Transmission Frequency Ranges - North Atlantic Path	162-163

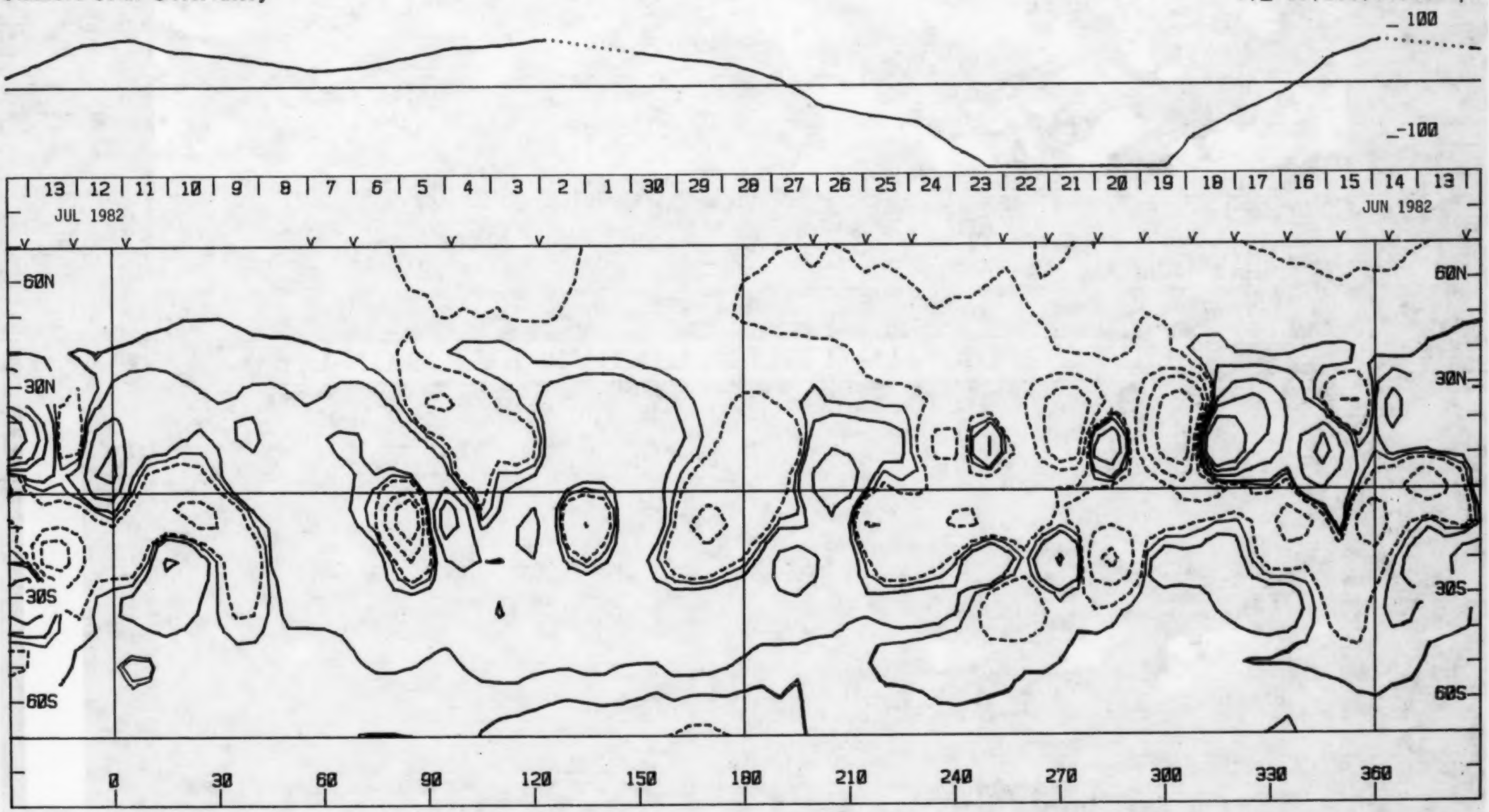
Hα SYNOPTIC CHART

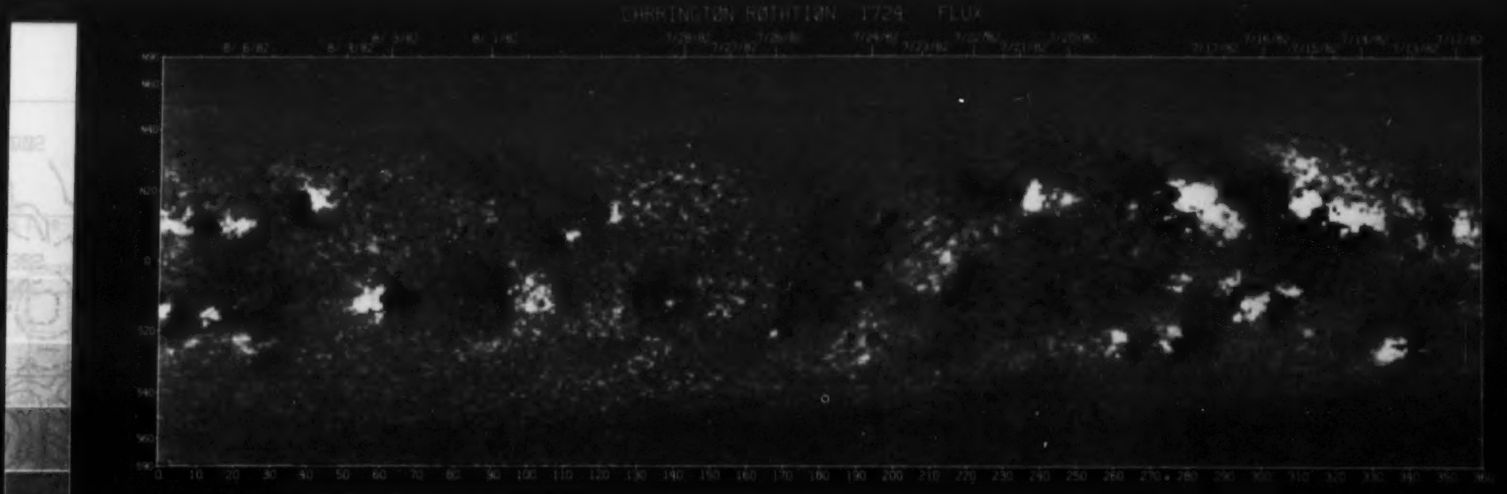
CARRINGTON ROTATION 1724 (PRELIMINARY)



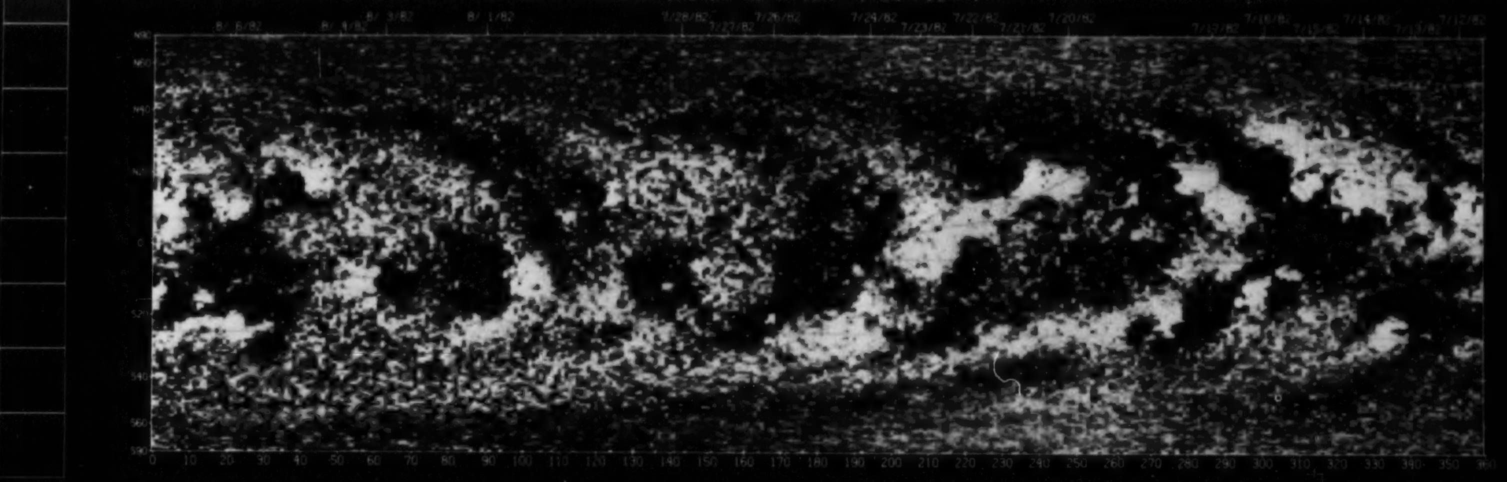
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1723

Stanford Solar Observatory





KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART



HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1724

KITT PEAK NATIONAL OBSERVATORY

JULY 1, 1982 (P=-2.85, B_o= 2.87, L_o= 148.13)

SACRAMENTO PEAK Np CORONA 5303 Å

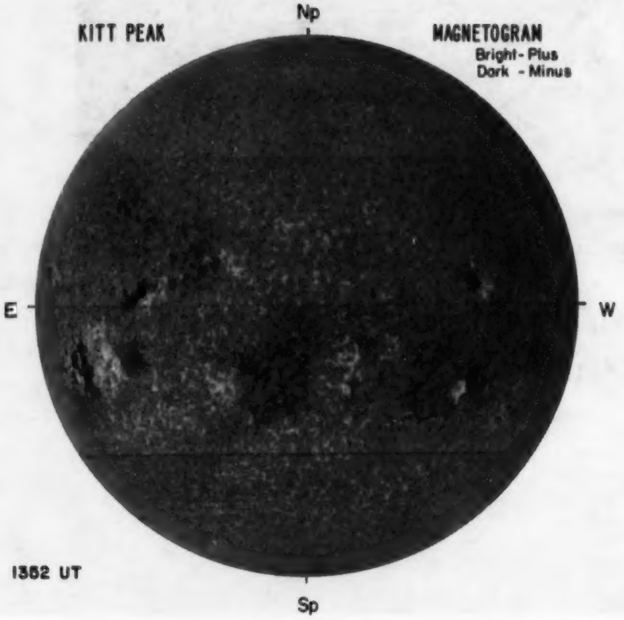
E NO DATA JULY 1, 4, 5, 7, 12, 13, 17, 21, 24, 25, 26, 27, 28, 29, 30, 31 W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

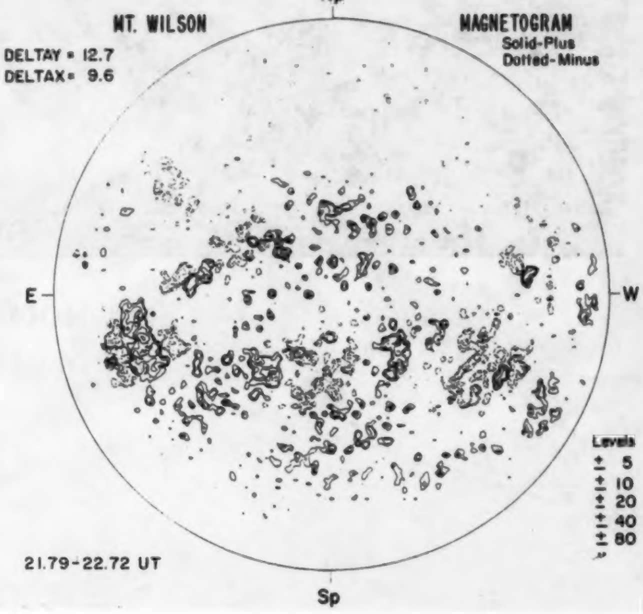


1352 UT

MT. WILSON

DELTAY = 12.7
DELTAX= 9.6

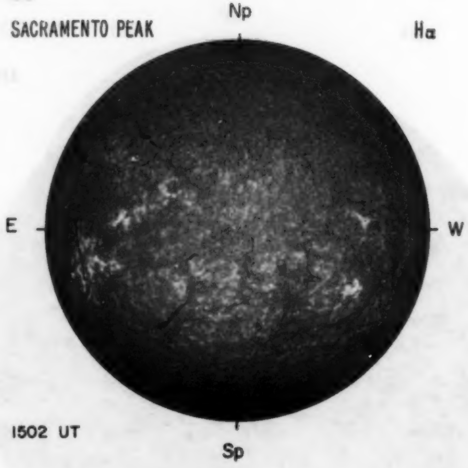
MAGNETOGRAM
Solid-Plus
Dotted-Minus



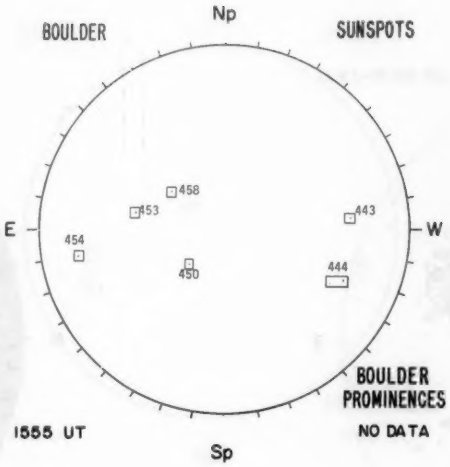
21.79-22.72 UT

01

SACRAMENTO PEAK Hα



BOULDER SUNSPOTS



BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS

43- 0900-3.0
44- 1000-3.5
53- 1200-3.5
54- 3500-3.0
58- 0200-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

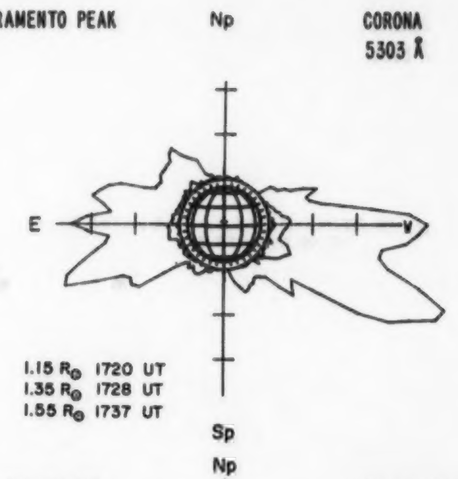
Np

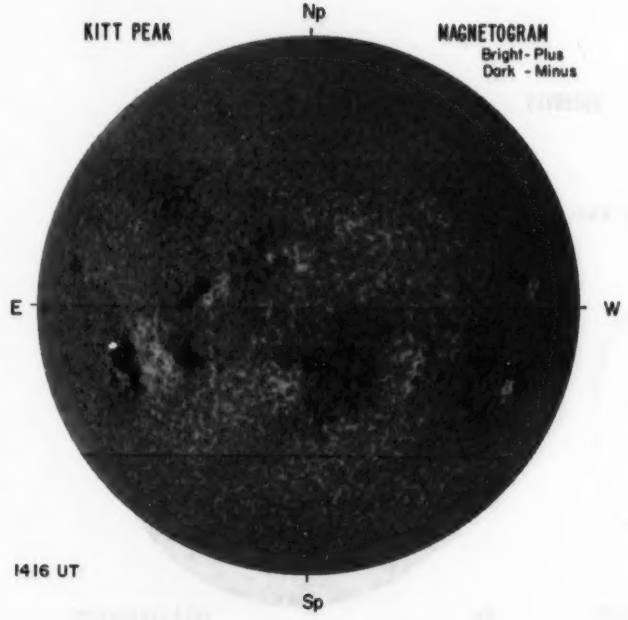
E NO DATA JULY 1, 2, 5, 8, 9, 10, 12, 16, 20, 21, 28, 29 W

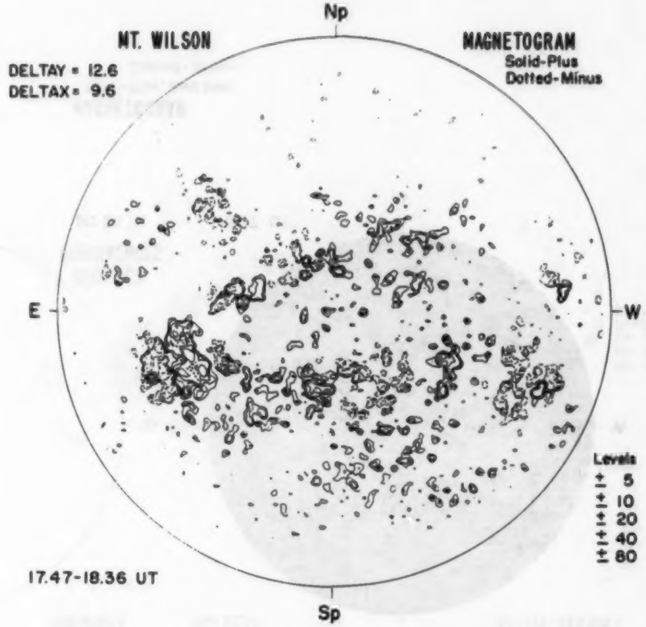
Sp

Levels
0 μT
± 50
±100
±200

JULY 2, 1982 (P=-2.39, B_o = 2.98, L_o = 134.89)





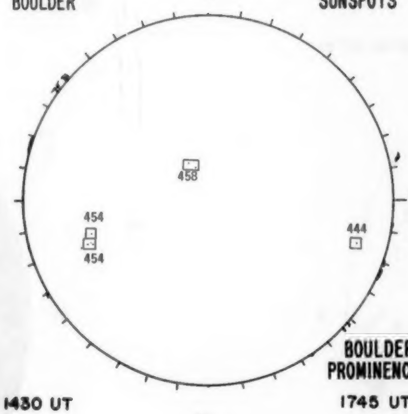


02

SACRAMENTO PEAK Hα

1503 UT

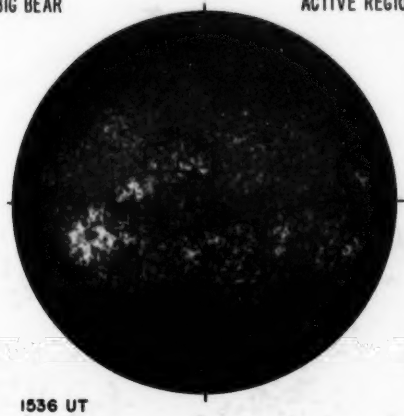
BOULDER SUNSPOTS



1430 UT

BOULDER PROMINENCES 1745 UT

BIG BEAR ACTIVE REGIONS



1536 UT

43- 0700-2.5
44- 1000-3.0
52- 0300-2.5
53- 1300-3.0
54- 3900-3.0
58- 0200-2.5
60- 0400-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

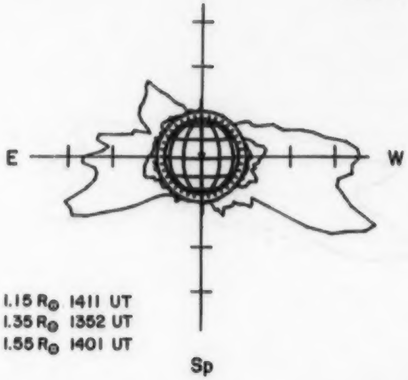
E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200

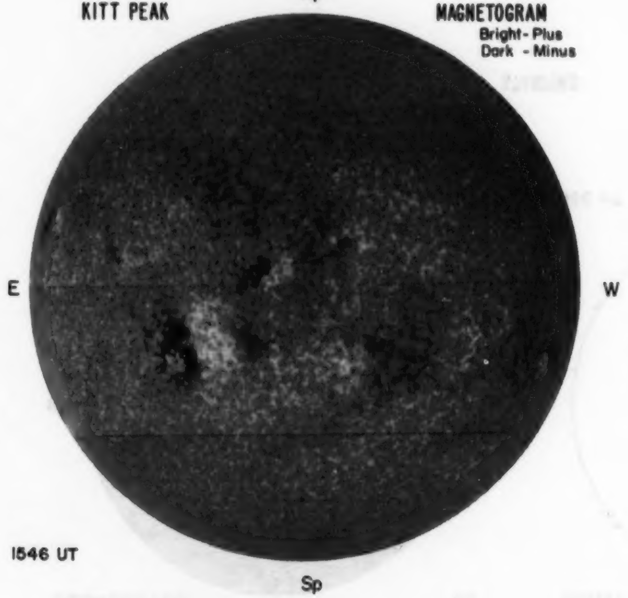
JULY 3, 1982 (P=-1.94, B_o = 3.09, L_o = 121.65)

SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1411 UT
1.35 $R_\odot$ 1352 UT
1.55 $R_\odot$ 1401 UT

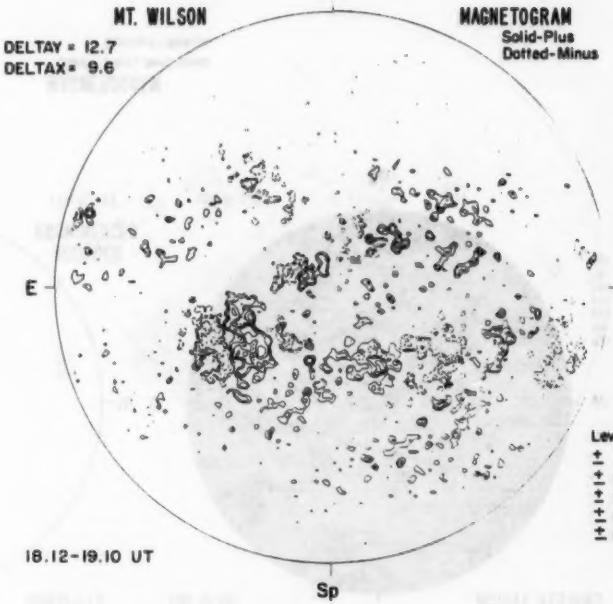
KITT PEAK — MAGNETOGRAM
Bright-Plus
Dark - Minus



1546 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

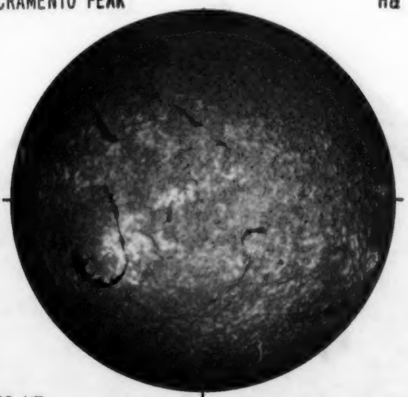
DELTAY = 12.7
DELTAX = 9.6

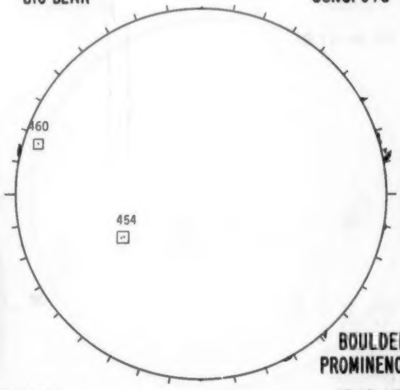


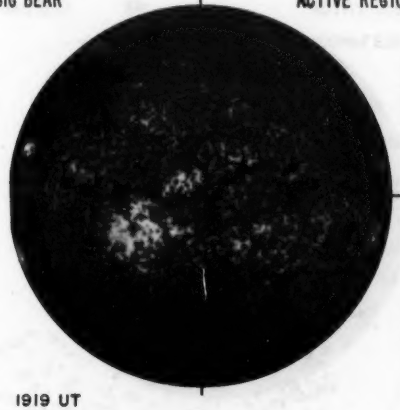
Levels
± 5
± 10
± 20
± 40
± 80

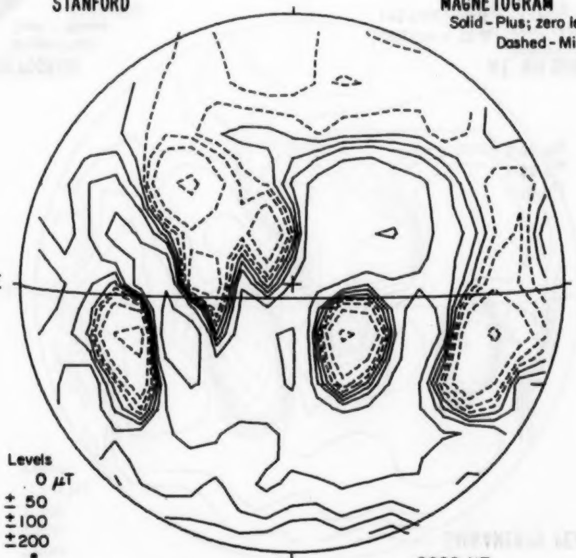
18.12-19.10 UT

03


SACRAMENTO PEAK
Hα
Np
E
W
Sp
1509 UT


BIG BEAR
SUNSPOTS
Np
E
W
Sp
460
454
1657 UT
BOULDER
PROMINENCES
1545 UT


BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
1919 UT
44- 1000-3.0
50- 2500-2.5
53- 1300-3.0
54- 4300-3.0
58- 0200-2.5
60- 1600-3.0
62- 1500-3.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
0020 UT

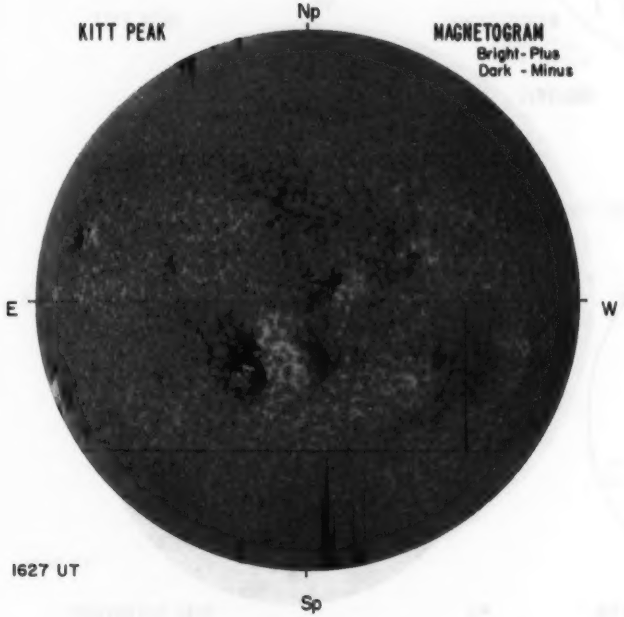
JULY 4, 1982 (P=-1.48, B_o= 3.19, L_o= 108.42)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

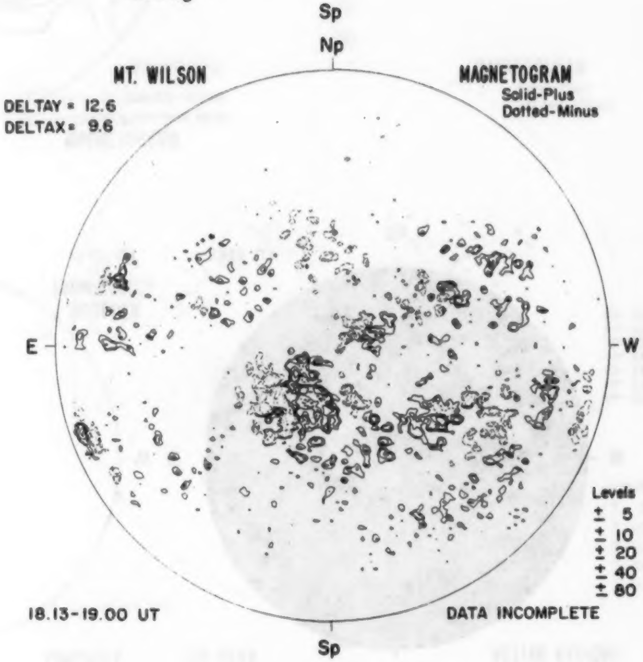
KITT PEAK MAGNETOGRAM Bright-Plus Dark - Minus



1627 UT

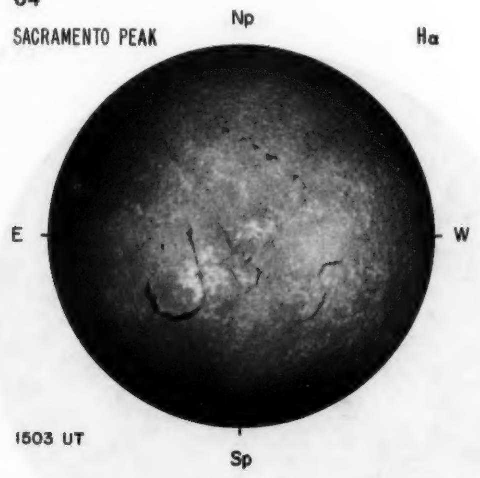
MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

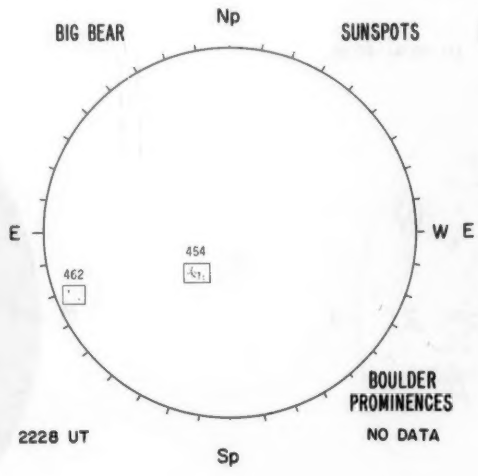
DELTAY = 12.6
DELTAX = 9.6

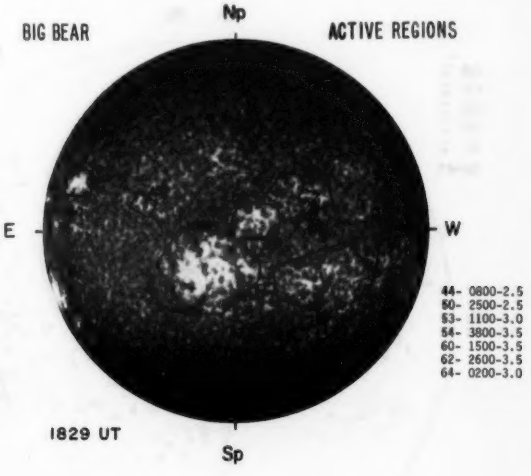


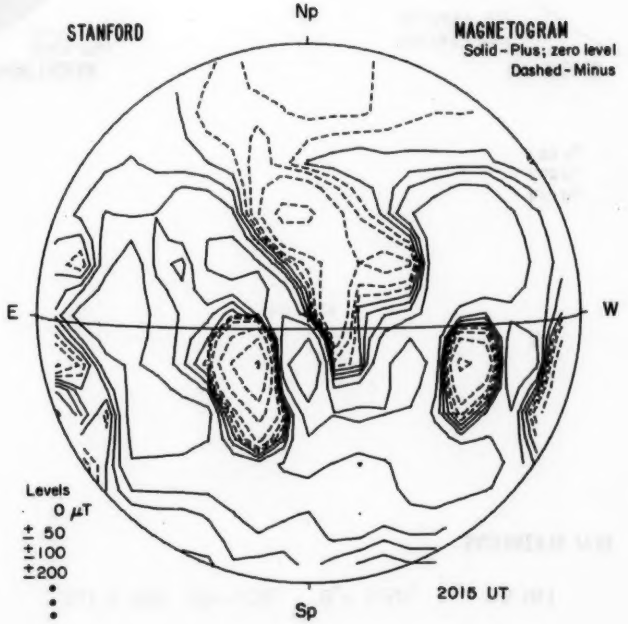
18.13-19.00 UT DATA INCOMPLETE

04


SACRAMENTO PEAK
Hα
Np
E
W
Sp
1503 UT


BIG BEAR
SUNSPOTS
Np
E
W
Sp
462
454
2228 UT
BOULDER
PROMINENCES
NO DATA


BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
1829 UT
44- 0800-2.5
50- 2500-2.5
53- 1100-3.0
54- 3800-3.5
60- 1500-3.5
62- 2600-3.5
64- 0200-3.0


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
± 100
± 200
2015 UT

JULY 5, 1982 (P=-1.03, B_o= 3.30, L_o= 95.18)

SACRAMENTO PEAK Np CORONA 5303 Å

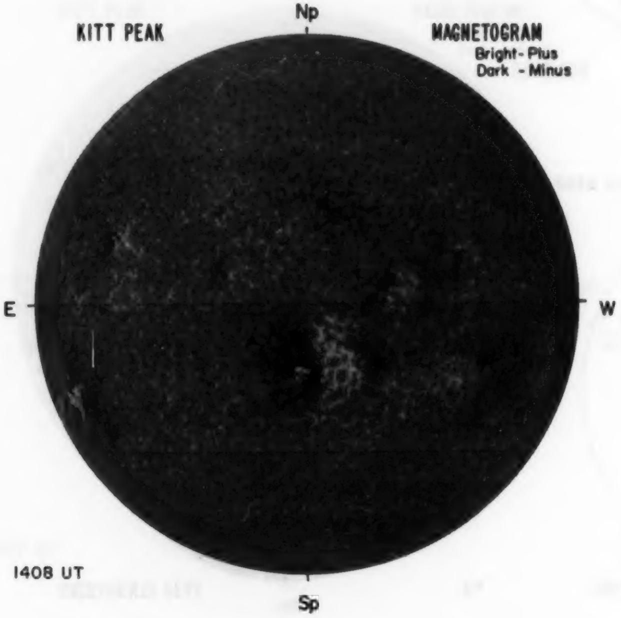
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

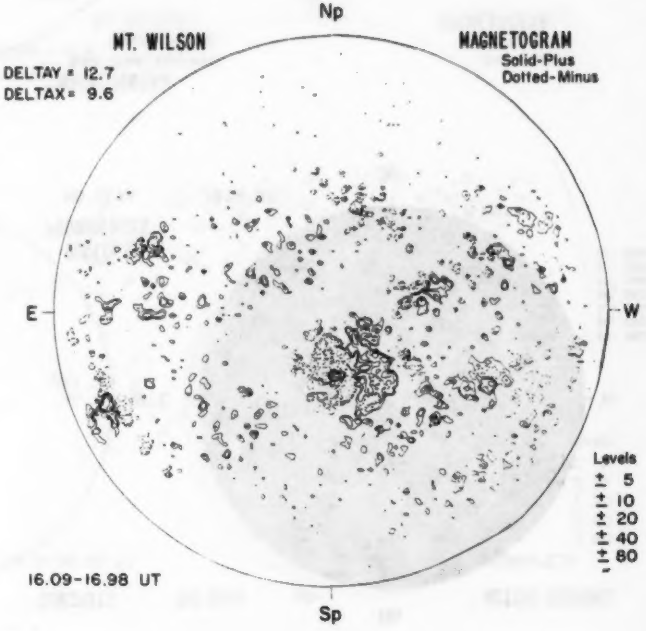


1408 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

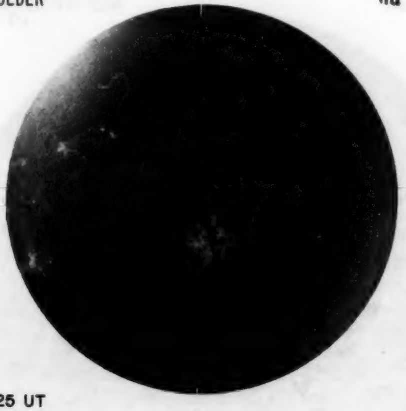
DELTAY = 12.7
DELTAX = 9.6



16.09-16.98 UT

05

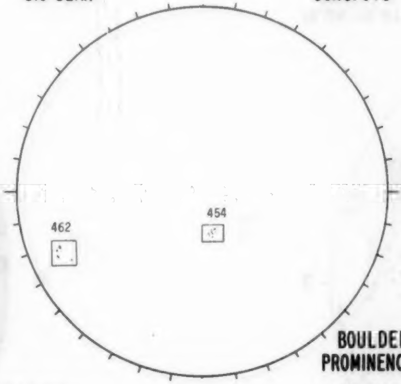
BOULDER Hα



Np / Sp / E / W

1525 UT

BIG BEAR SUNSPOTS



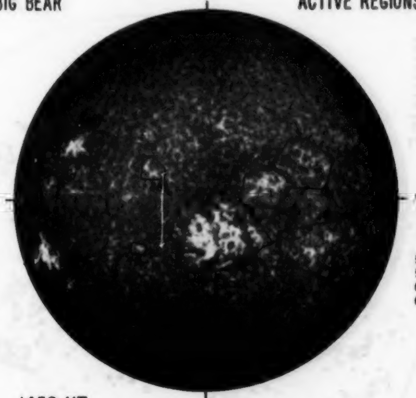
Np / Sp / E / W

2345 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS



Np / Sp / E / W

1459 UT

53- 0900-2.5
54- 3300-3.0
60- 1100-3.5
62- 2800-3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

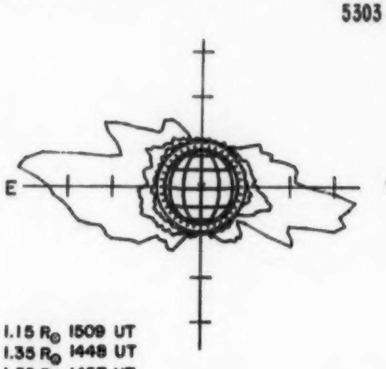
E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

JULY 6, 1982 (P= -0.58, B_o = 3.41, L_o = 81.95)

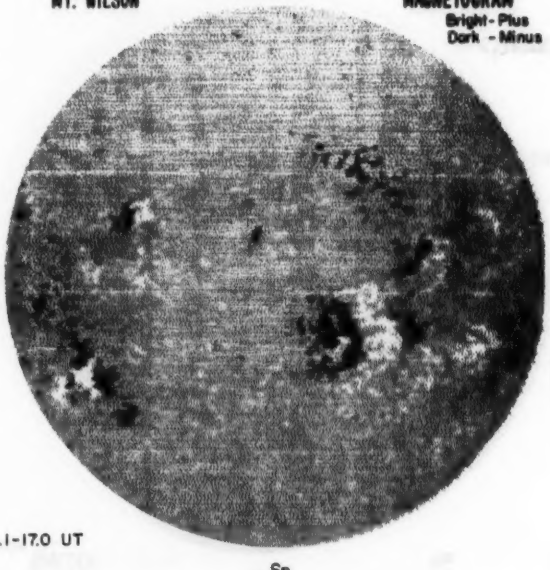
SACRAMENTO PEAK | Np | CORONA 5303 Å



1.15 $R_\odot$ 1509 UT
1.35 $R_\odot$ 1448 UT
1.55 $R_\odot$ 1457 UT

Sp

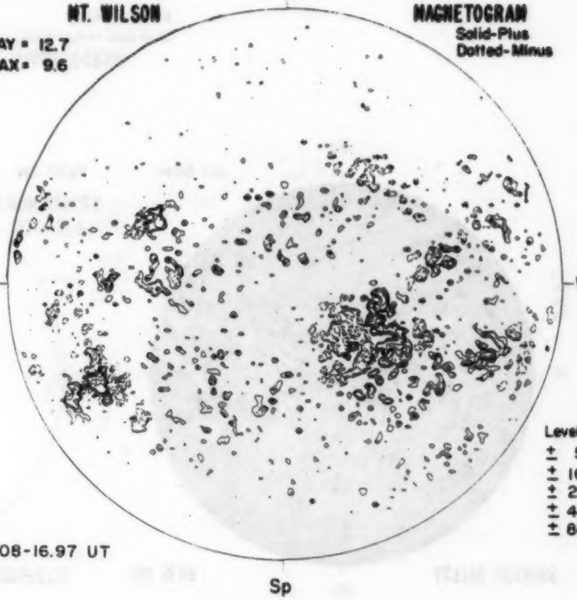
MT. WILSON | Np | MAGNETOGRAM Bright-Plus Dark -Minus



16.1-17.0 UT | Sp

MT. WILSON | Np | MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

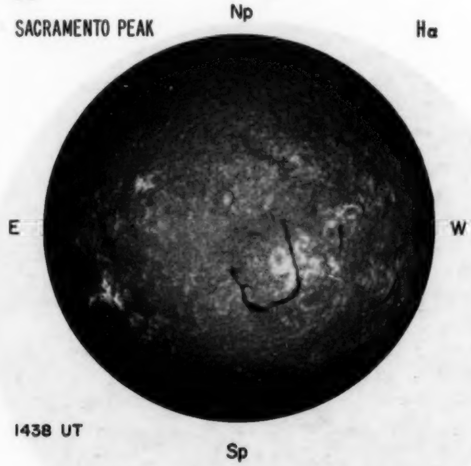


Levels
± 5
± 10
± 20
± 40
± 80

16.08-16.97 UT | Sp

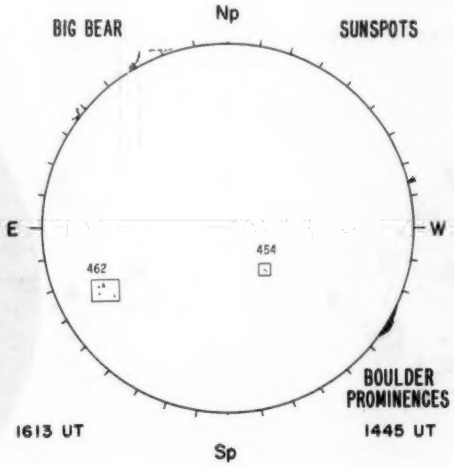
06

SACRAMENTO PEAK Hα



1438 UT

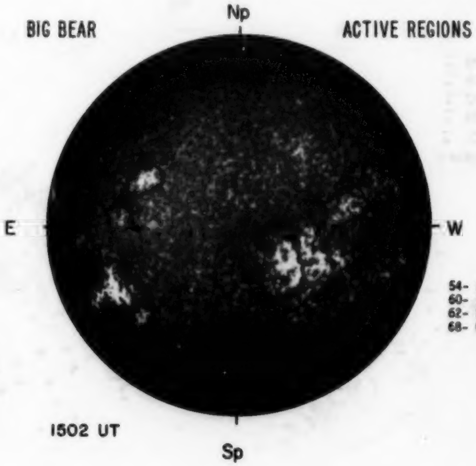
BIG BEAR SUNSPOTS



1613 UT

BOULDER PROMINENCES 1445 UT

BIG BEAR ACTIVE REGIONS

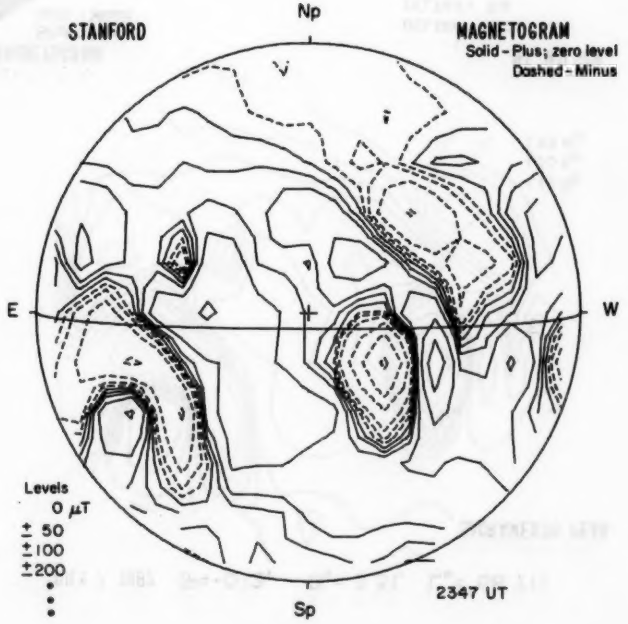


54- 3500-3.0
60- 1000-3.5
62- 2700-3.0
68- 0900-2.5

1502 UT

STANFORD MAGNETOGRAM

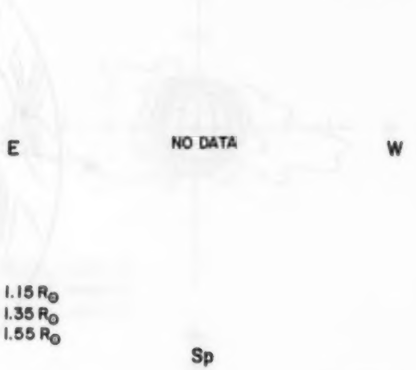
Solid - Plus; zero level
Dashed - Minus

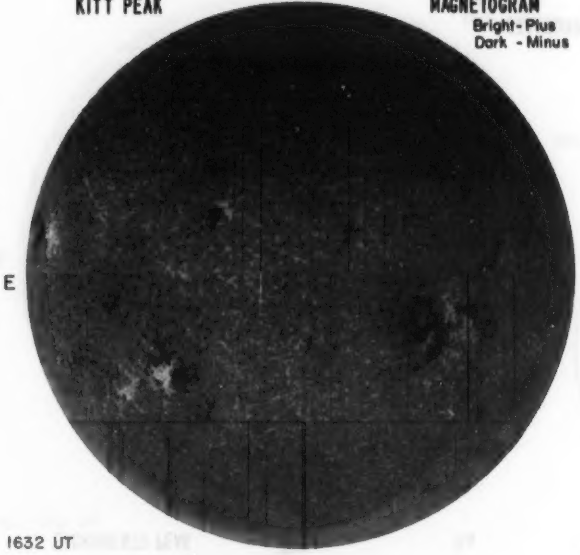


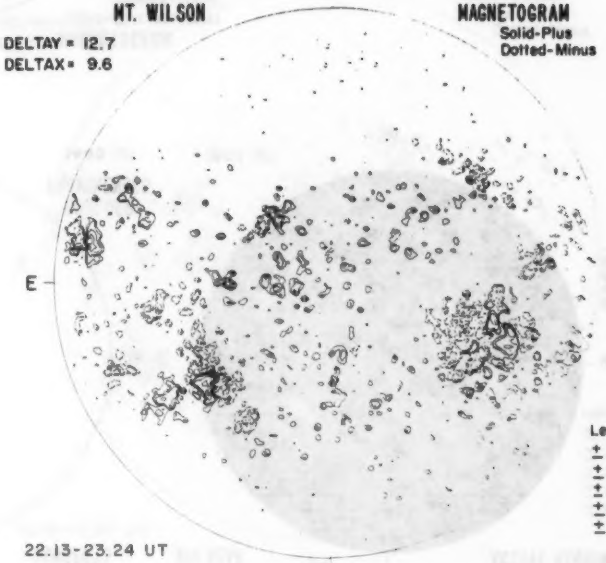
Levels
0 μT
± 50
±100
±200
•
•
•

2347 UT

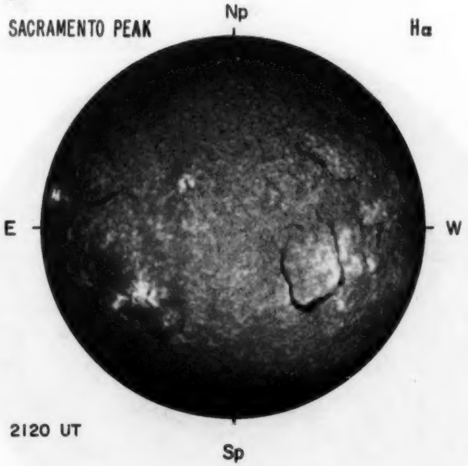
JULY 7, 1982 (P=-0.12, B_o= 3.51, L_o= 68.71)

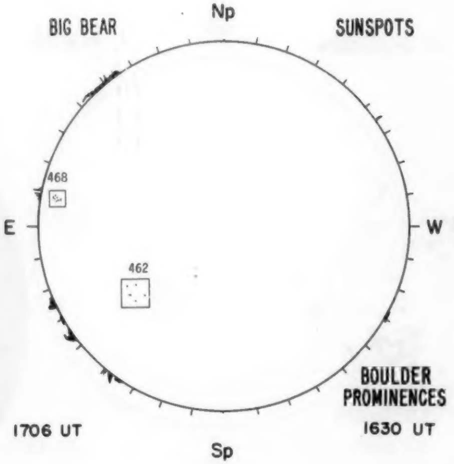


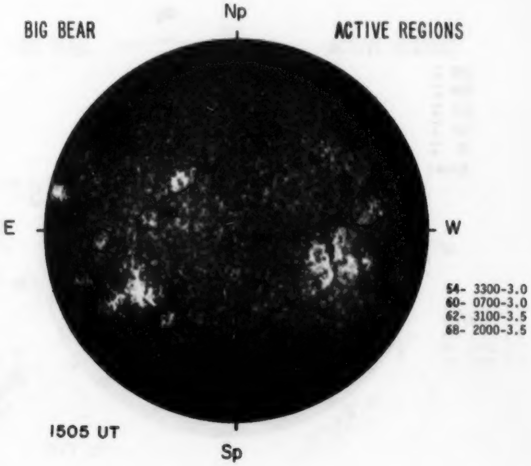


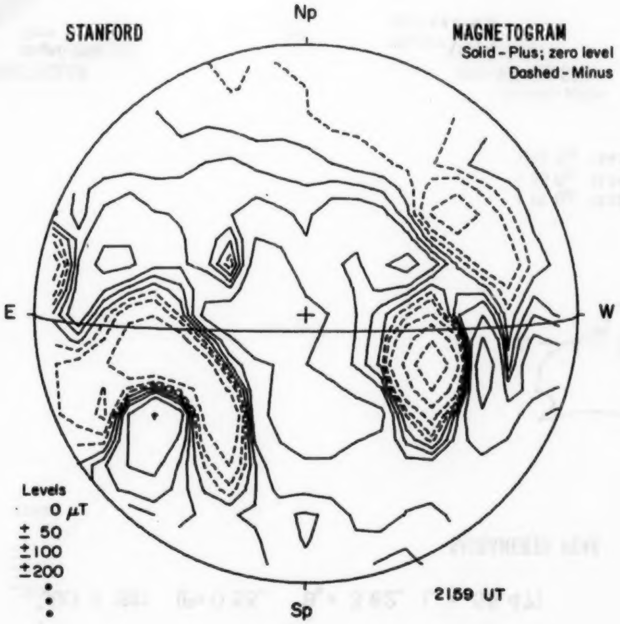


07


SACRAMENTO PEAK
Hα
Np
E
W
Sp
2120 UT

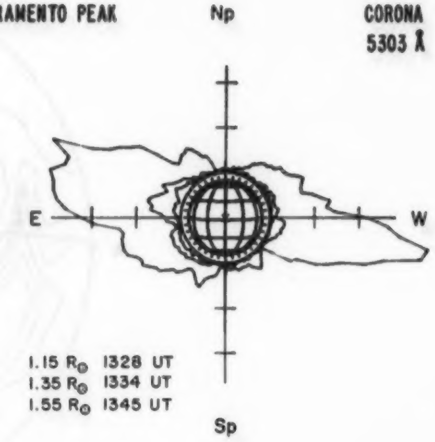

BIG BEAR
SUNSPOTS
Np
E
W
Sp
468
462
1706 UT
BOULDER
PROMINENCES
1630 UT


BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
1505 UT
54- 3300-3.0
60- 0700-3.0
62- 3100-3.5
68- 2000-3.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
2159 UT

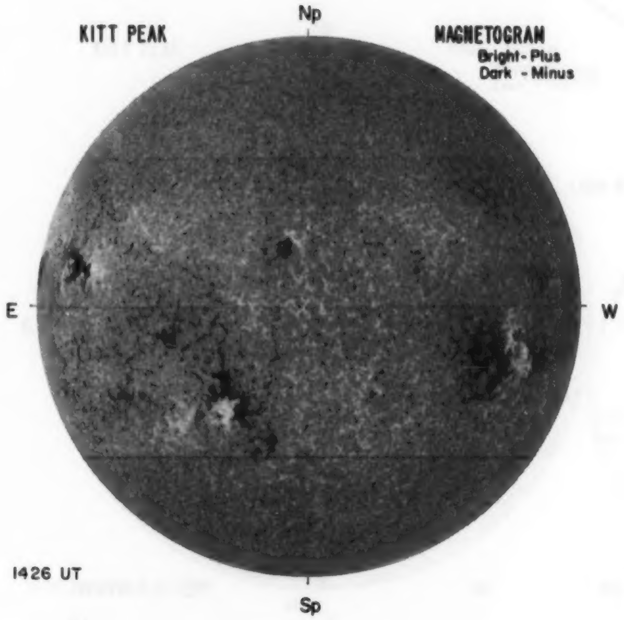
JULY 8, 1982 (P= 0.33, B_o = 3.62, L_o = 55.47)

SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1328 UT
1.35 $R_\odot$ 1334 UT
1.55 $R_\odot$ 1345 UT

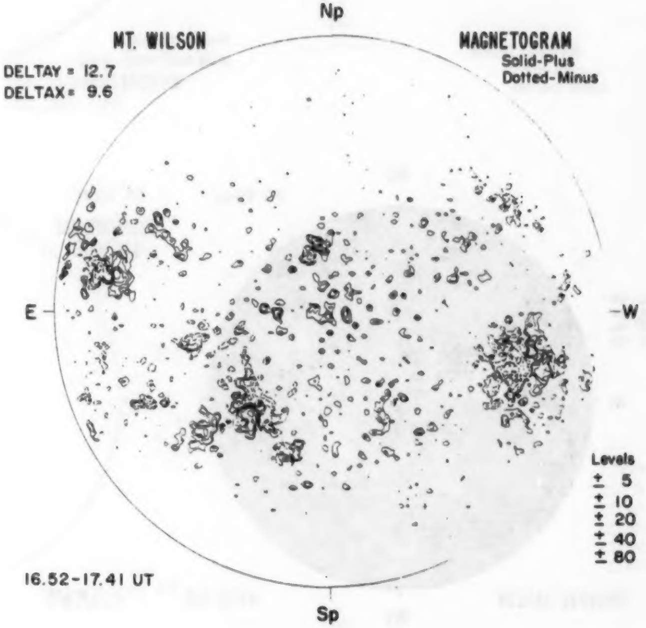
KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus



1426 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

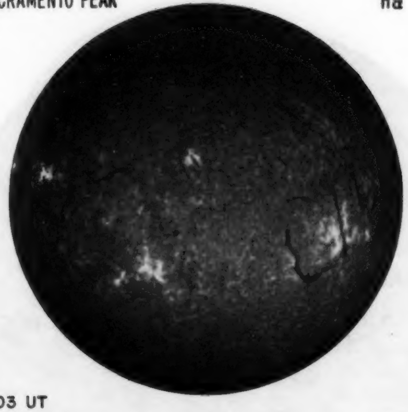


Levels
± 5
± 10
± 20
± 40
± 80

16.52-17.41 UT

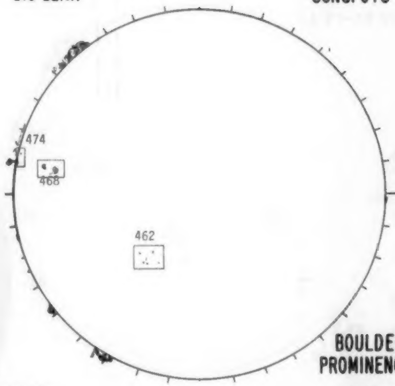
08

SACRAMENTO PEAK Hα



1503 UT

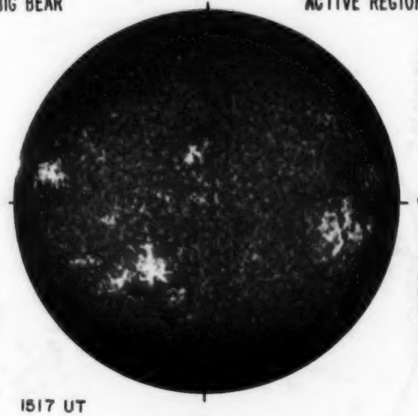
BIG BEAR SUNSPOTS



BOULDER PROMINENCES

1653 UT 1433 UT

BIG BEAR ACTIVE REGIONS



54- 3300-3.0
60- 0800-2.5
62- 3100-3.5
68- 2500-3.5
74- 1600-3.5

1517 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

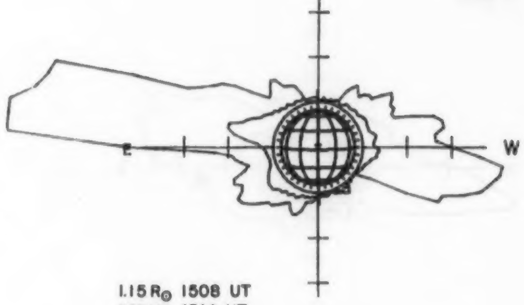
E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

JULY 9, 1982 (P= 0.78, B_o= 3.72, L_o= 42.24)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1508 UT
1.35 $R_\odot$ 1514 UT
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

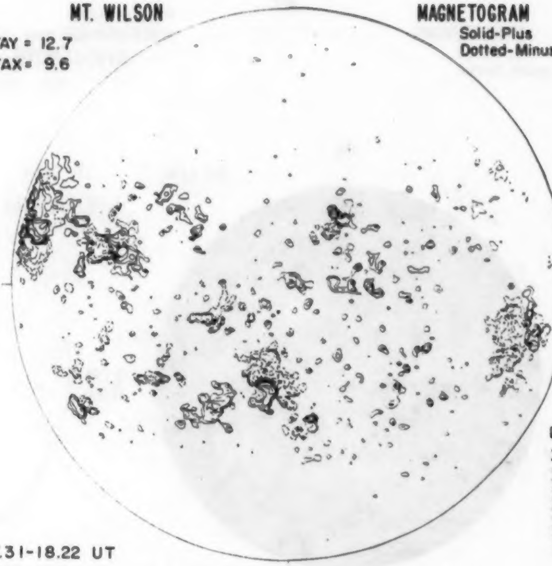
E W

1555 UT Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

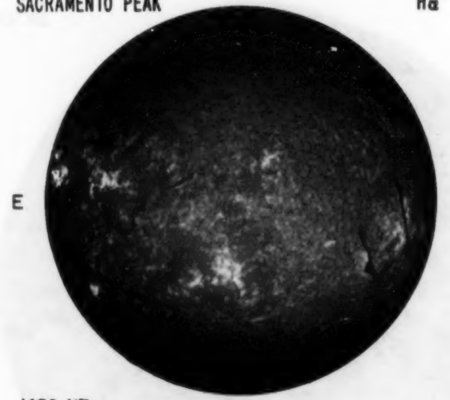
E  W

Levels
± 5
± 10
± 20
± 40
± 80

17.31-18.22 UT Sp

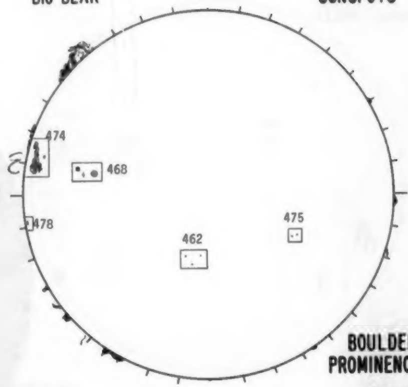
09

SACRAMENTO PEAK Hα



1459 UT

BIG BEAR SUNSPOTS



BOULDER PROMINENCES

1632 UT 1730 UT

BIG BEAR ACTIVE REGIONS

54- 3100-2.5
60- 0600-2.5
62- 3200-3.5
68- 2700-3.0
72- 0800-3.5
74- 3300-3.5
75- 0200-3.0
78- 0500-3.0

1517 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

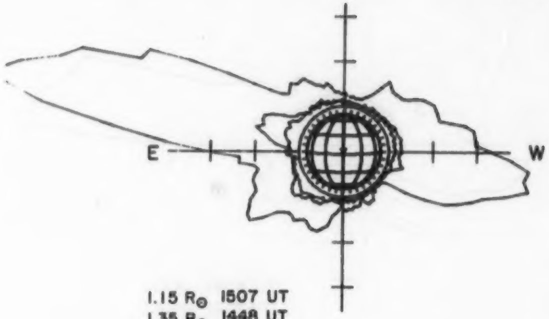
E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

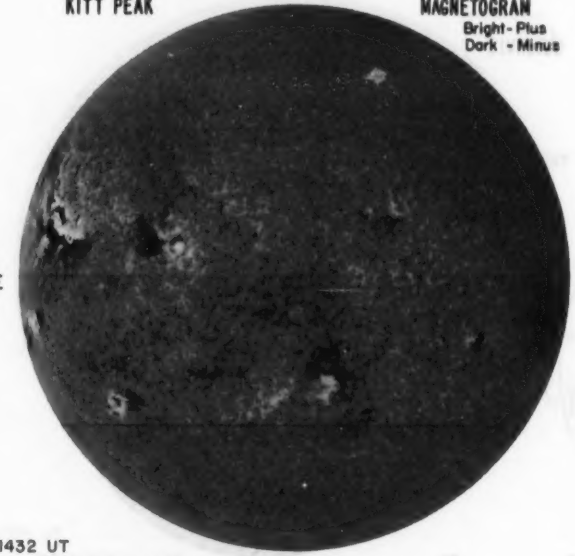
JULY 10, 1982 (P= 1.24, B_o= 3.83, L_o= 29.00)

SACRAMENTO PEAK CORONA 5303 Å



1.15 $R_\odot$ 1507 UT
1.35 $R_\odot$ 1448 UT
1.55 $R_\odot$ 1457 UT

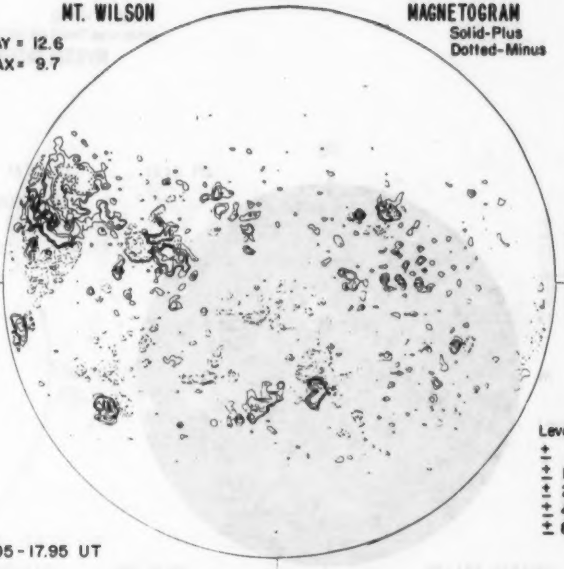
KITT PEAK MAGNETOGRAM
Bright-Plus
Dark - Minus



1432 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX= 9.7

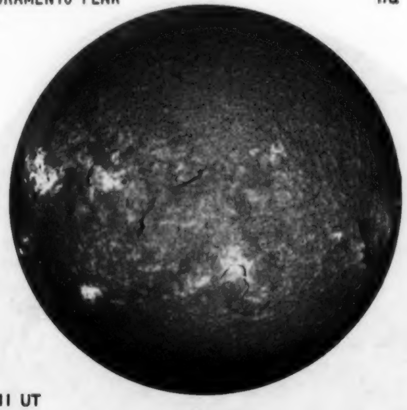


17.05 - 17.95 UT

10

SACRAMENTO PEAK Np Hα

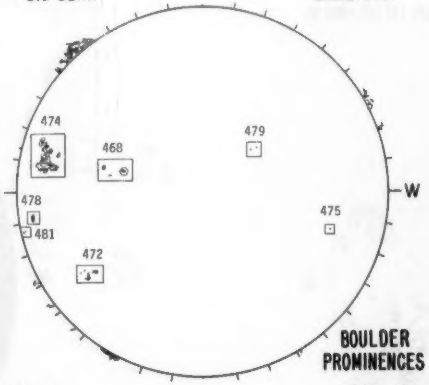
E W



1511 UT Sp

BIG BEAR Np SUNSPOTS

E W

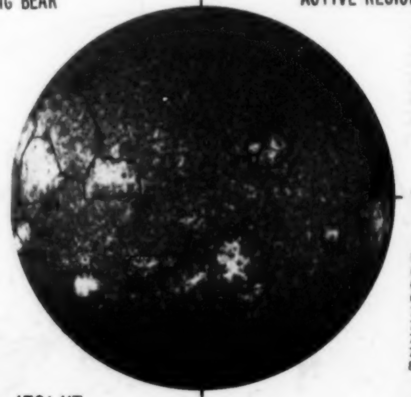


BOULDER PROMINENCES

1625 UT Sp 1315 UT

BIG BEAR Np ACTIVE REGIONS

E W



1721 UT Sp

54- 2600-2.5
60- 0700-2.5
62- 3100-3.5
68- 2700-3.5
72- 1900-3.5
73- 4900-2.5
74-10000-4.0
78- 1100-3.0
81- 1400-3.0

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

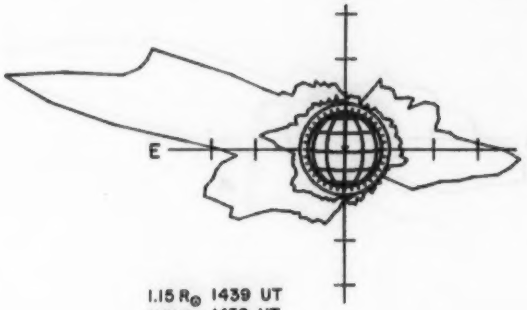
E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

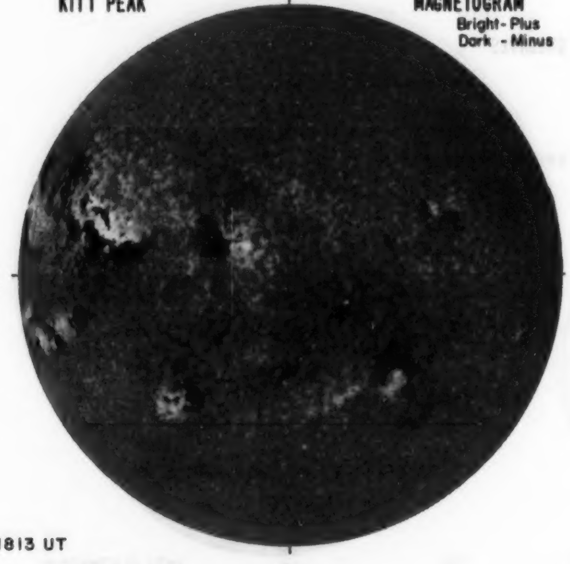
JULY 11, 1982 (P= 1.69, B_o= 3.93, L_o= 15.77)

SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1439 UT
1.35 $R_\odot$ 1430 UT
1.55 $R_\odot$

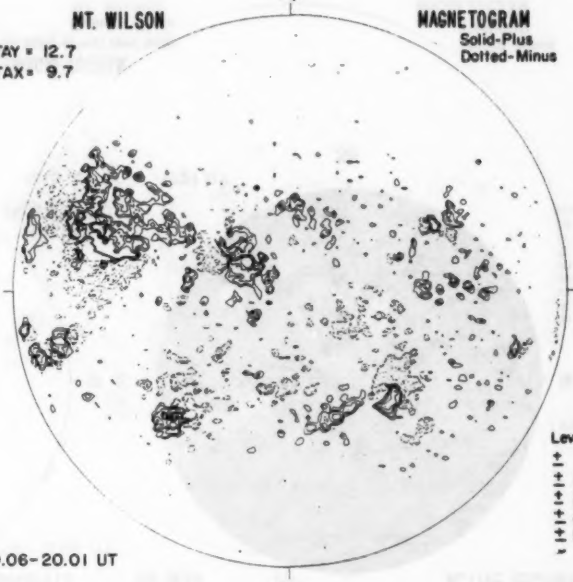
KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus



1813 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7



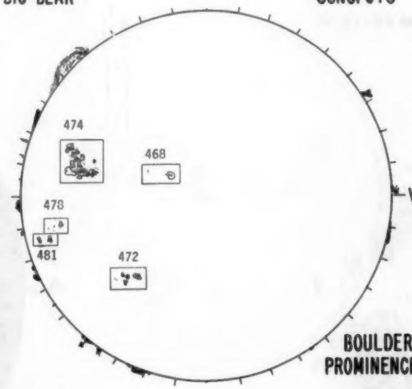
19.06-20.01 UT

11

SACRAMENTO PEAK Hα

1508 UT

BIG BEAR SUNSPOTS

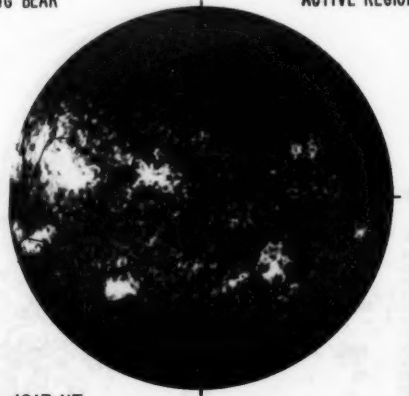


1729 UT

BOULDER PROMINENCES

1445 UT

BIG BEAR ACTIVE REGIONS

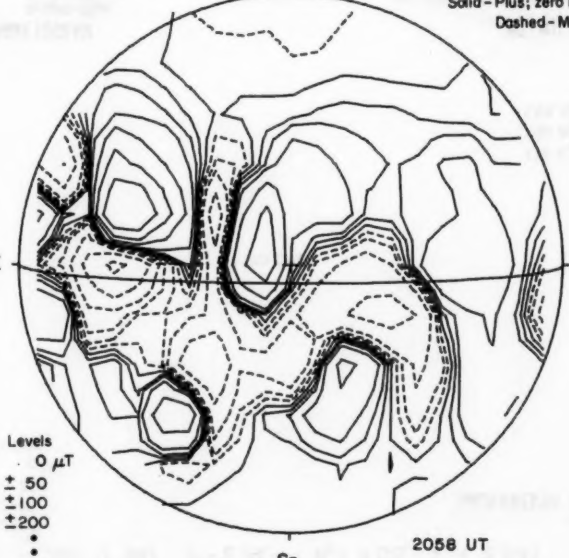


1917 UT

54- 1000-2.5
60- 0500-2.5
62- 2800-3.0
68- 2300-3.0
72- 2700-3.5
73- 5000-2.5
74-10000-4.0
75- 0400-2.5
79- 0500-2.5
81- 1800-3.5
83- 2400-3.0
84- 2500-3.5
85- 1000-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

2058 UT

JULY 12, 1982 (P= 2.14, B_o= 4.03, L_o= 2.54)

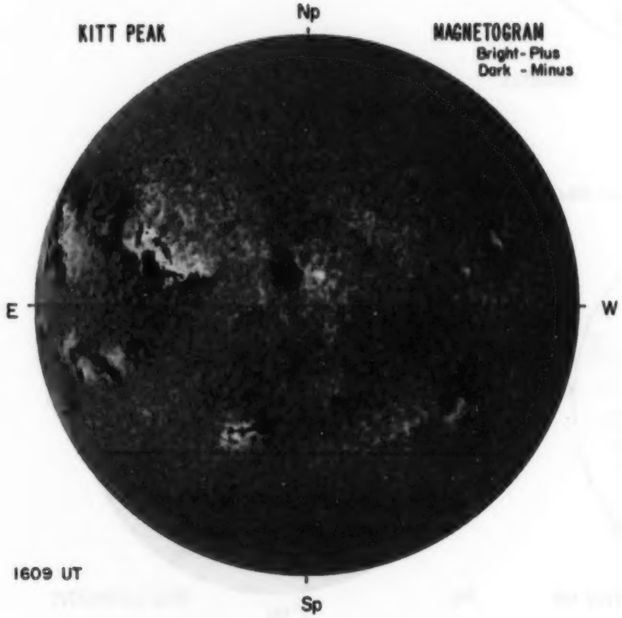
SACRAMENTO PEAK | Np | CORONA 5303 Å

E | NO DATA | W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

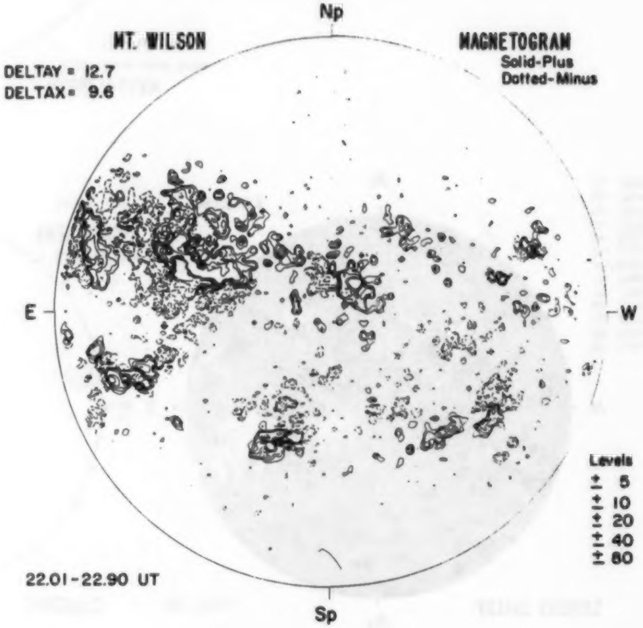
KITT PEAK | MAGNETOGRAM
Bright - Plus
Dark - Minus



1609 UT

MT. WILSON | MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



22.01-22.90 UT

12

SACRAMENTO PEAK Hα

Np

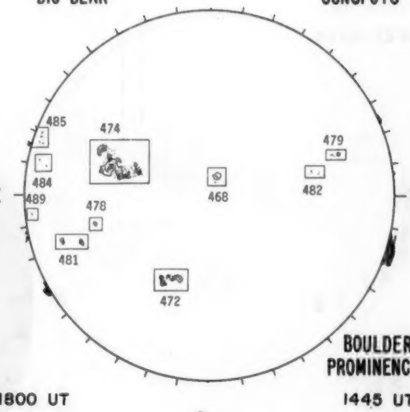
E W

1510 UT Sp

BIG BEAR SUNSPOTS

Np

E W



1800 UT Sp

BOULDER PROMINENCES 1445 UT

BIG BEAR ACTIVE REGIONS

Np

E W

1803 UT Sp

60- 0400-2.5
62- 2800-3.0
68- 2300-3.0
72- 2300-3.5
73- 4400-2.5
74-10000-4.0
79- 0600-2.5
81- 1500-2.5
82- 0300-2.5
84- 3500-3.0
85- 3500-3.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
± 100
± 200

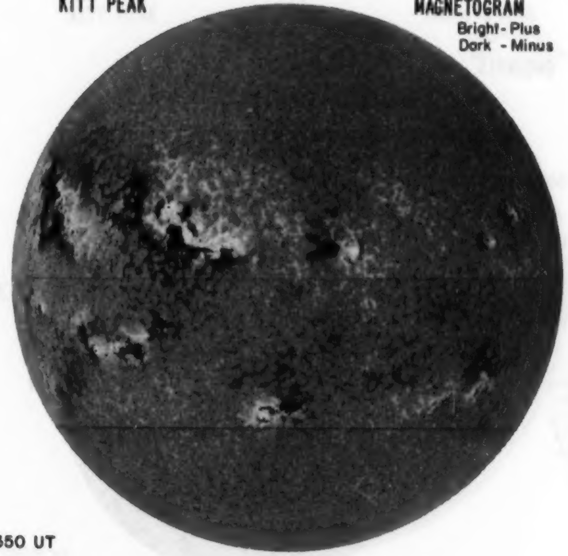
JULY 13, 1982 (P= 2.58, B_o = 4.13, L_o = 349.30)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

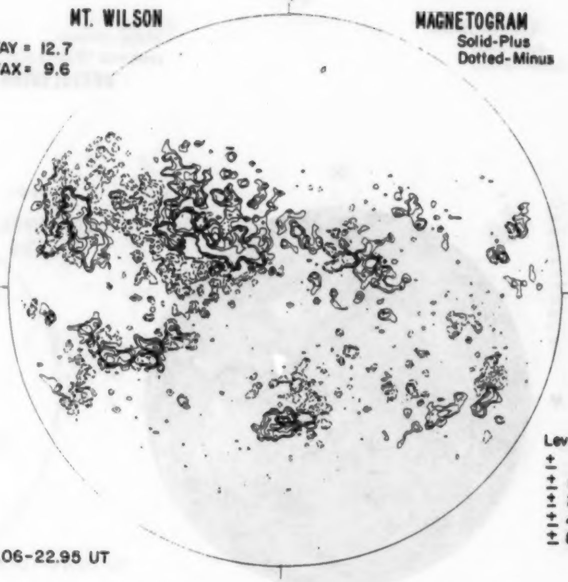
E  W

1350 UT Sp

Sp
Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

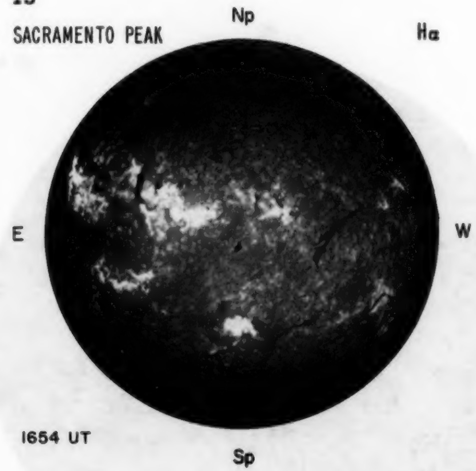
E  W

Levels
± 5
± 10
± 20
± 40
± 80

22.06-22.95 UT Sp

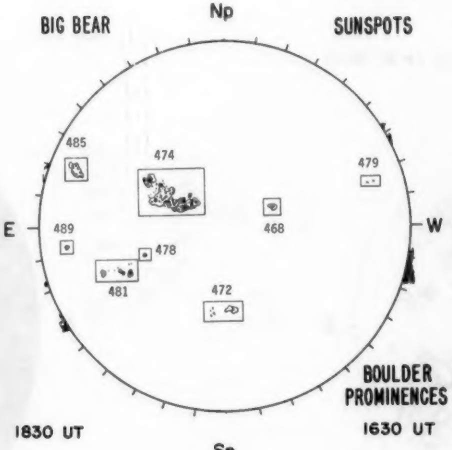
13

SACRAMENTO PEAK Hα



1654 UT

BIG BEAR SUNSPOTS

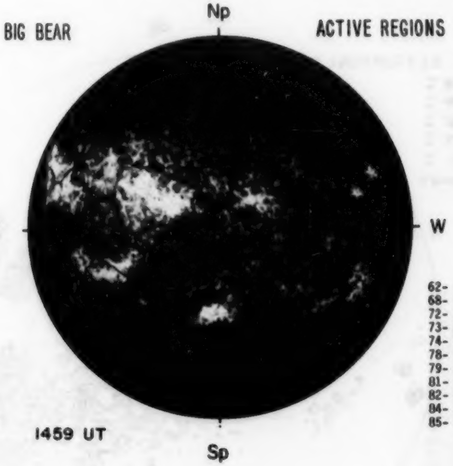


1830 UT

BOULDER PROMINENCES

1630 UT

BIG BEAR ACTIVE REGIONS

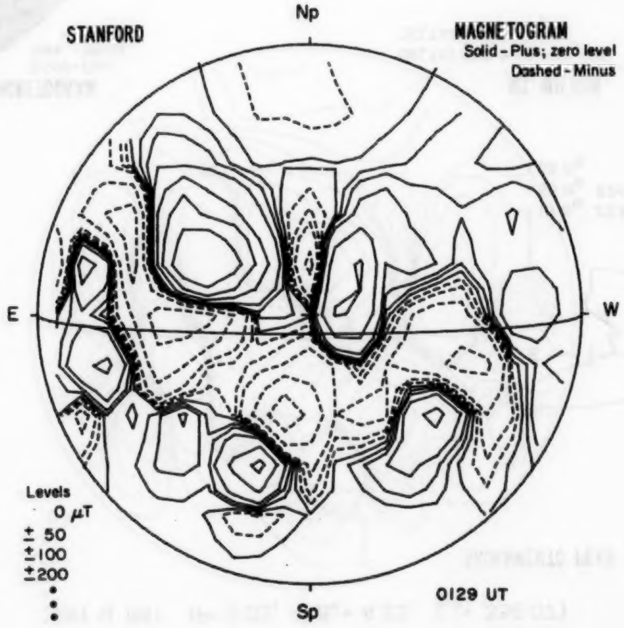


1459 UT

62- 3100-2.5
68- 2200-3.0
72- 2400-4.0
73- 5400-2.5
74- 9700-4.0
78- 1500-3.0
79- 0600-2.5
81- 2600-3.0
82- 0400-2.5
84- 3200-3.5
85- 2400-3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



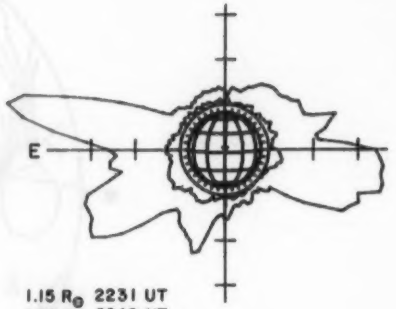
Levels
0 μT
± 50
±100
±200

0129 UT

JULY 14, 1982 (P= 3.03, B_o = 4.23, L_o = 336.07)

SACRAMENTO PEAK

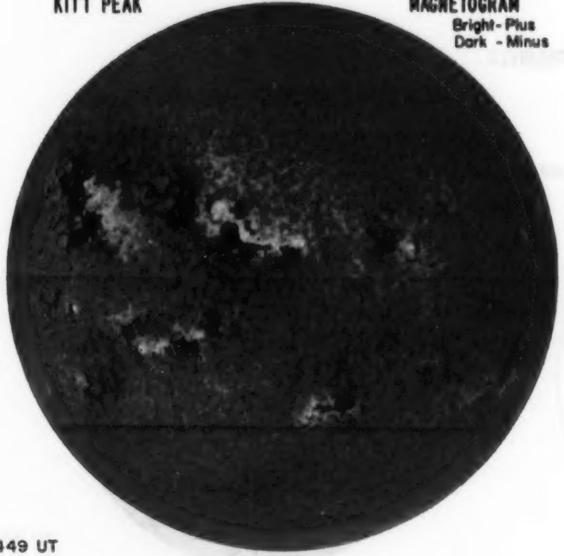
CORONA
5303 Å



1.15 $R_\odot$ 2231 UT
1.35 $R_\odot$ 2240 UT
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

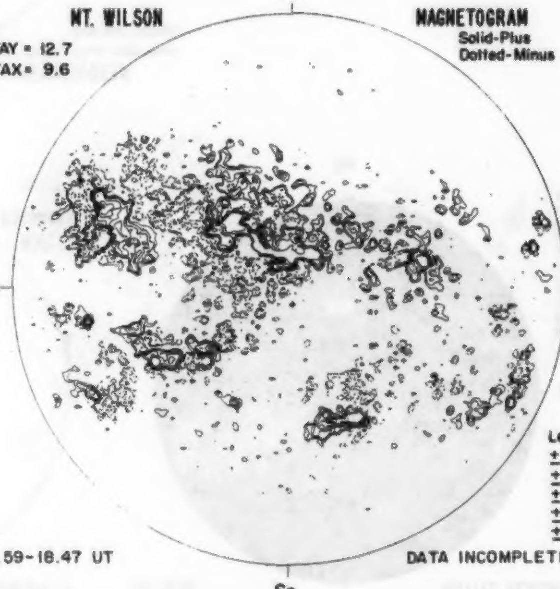


1449 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

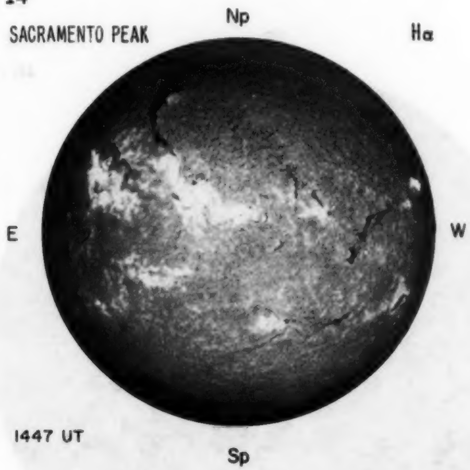
DELTAY = 12.7
DELTAX = 9.6



17.59-18.47 UT

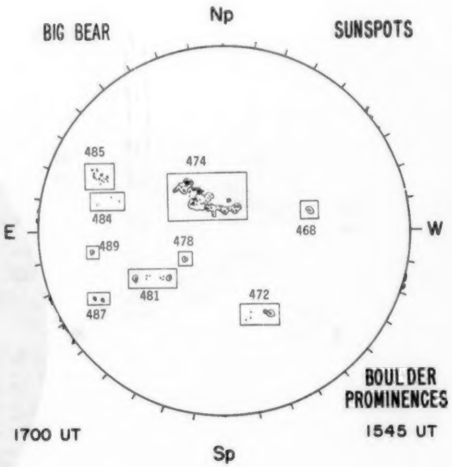
DATA INCOMPLETE

SACRAMENTO PEAK Hα



1447 UT

BIG BEAR SUNSPOTS



1700 UT

BOULDER PROMINENCES

1545 UT

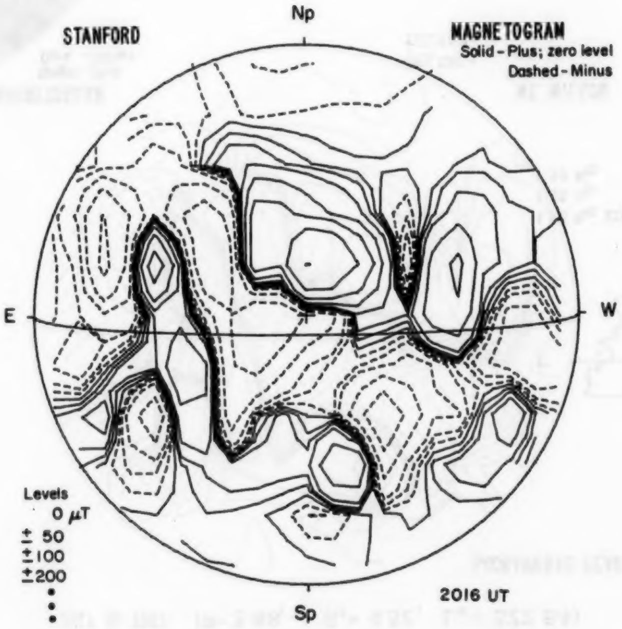
BIG BEAR ACTIVE REGIONS

1502 UT

62- 2100-2.5
68- 2200-3.0
72- 2400-3.5
73- 4800-4.5
74-10000-4.0
78- 1500-3.0
79- 0500-2.5
81- 1400-2.5
82- 0300-2.5
83- 0600-2.5
84- 3800-3.5
85- 3200-3.5
87- 0800-3.0
90- 0100-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



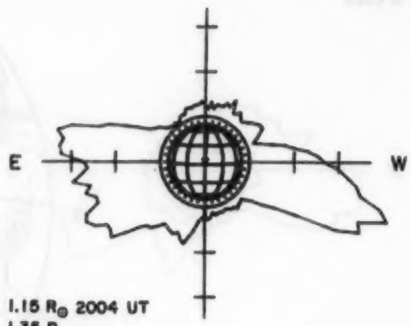
Levels
0 μT
± 50
±100
±200
•
•
•

2016 UT

JULY 15, 1982 (P= 3.48, B_o= 4.32, L_o= 322.84)

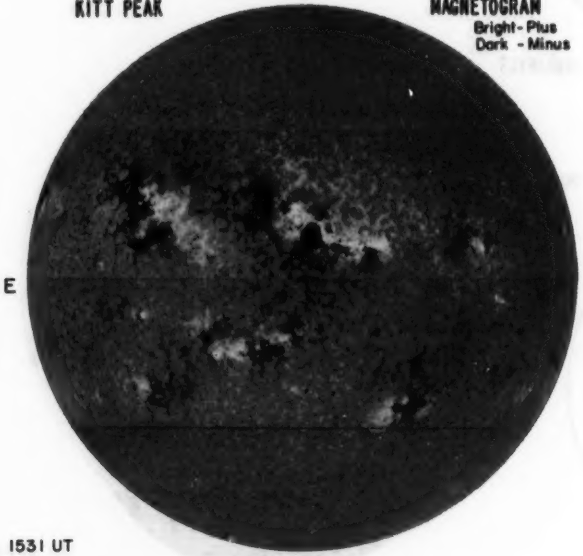
SACRAMENTO PEAK

CORONA
5303 Å



KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus



MT. WILSON

DELTAY =
DELTAX =

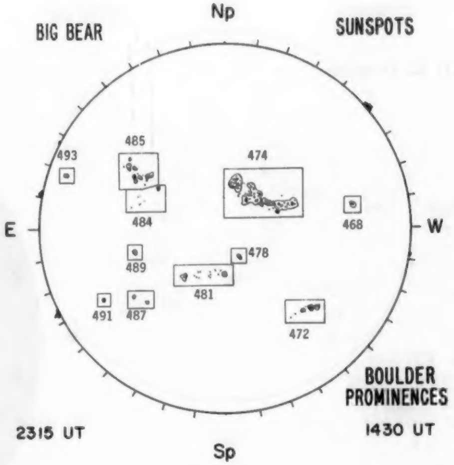
MAGNETOGRAM
Solid-Plus
Dotted-Minus

15

SACRAMENTO PEAK Hα

1506 UT

BIG BEAR SUNSPOTS



2315 UT

BOULDER PROMINENCES

1430 UT

BIG BEAR ACTIVE REGIONS

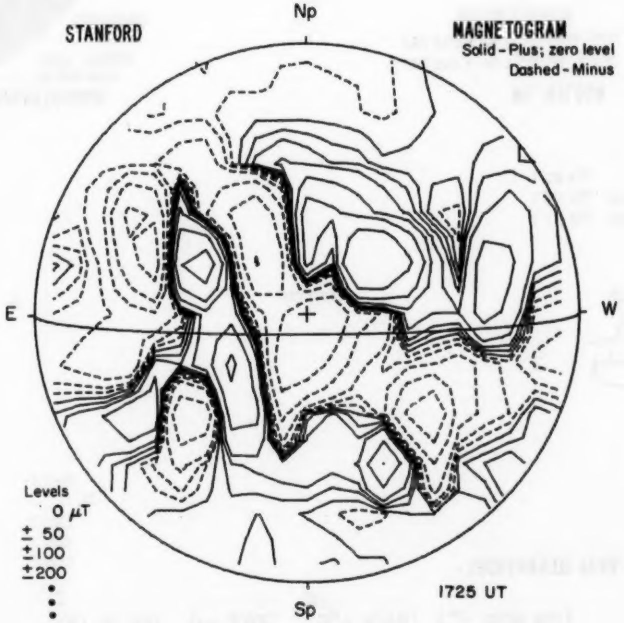
Np

E NO DATA W

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

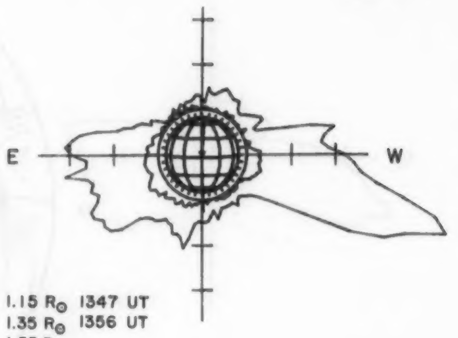


1725 UT

JULY 16, 1982 (P= 3.92, B_o= 4.42, L_o= 309.60)

SACRAMENTO PEAK

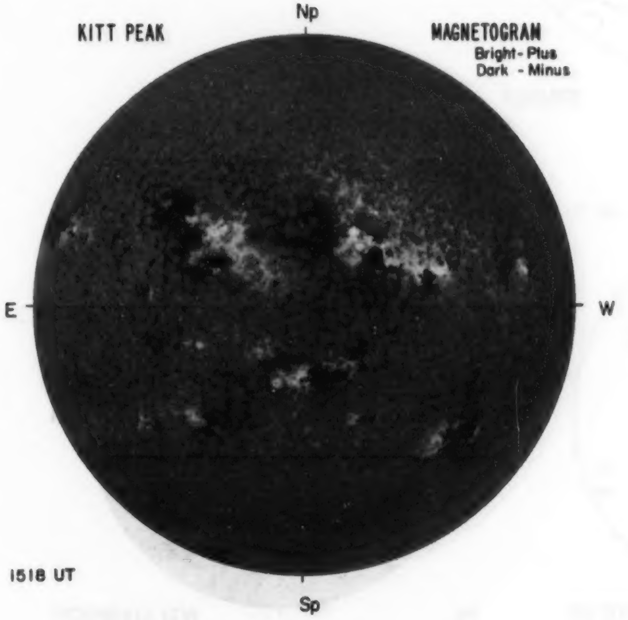
CORONA
5303 Å



1.15 $R_⊙$ 1347 UT
1.35 $R_⊙$ 1356 UT
1.55 $R_⊙$

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

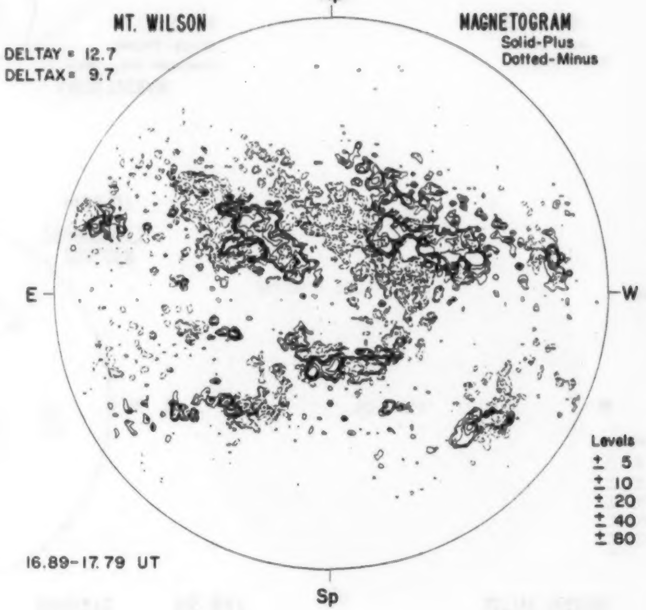


1518 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

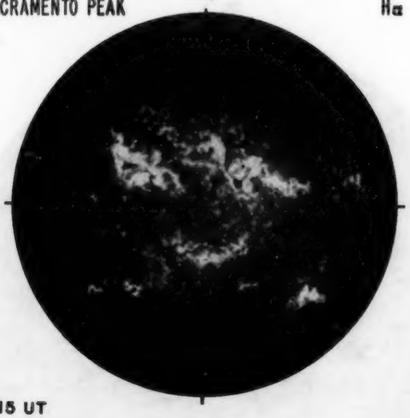


Levels
± 5
± 10
± 20
± 40
± 80

16.89-17.79 UT

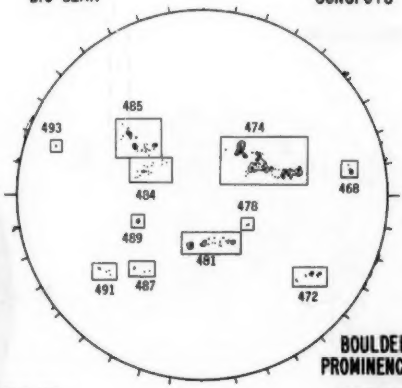
16

SACRAMENTO PEAK — Np — Hα

E  W

1515 UT — Sp

BIG BEAR — Np — SUNSPOTS

E  W

1704 UT — Sp

BOULDER
PROMINENCES

1430 UT

BIG BEAR — Np — ACTIVE REGIONS

E — NO DATA — W

Sp

STANFORD — Np — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E — NO DATA — W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

JULY 17, 1982 (P= 4.36, B_o= 4.51, L_o= 296.37)

SACRAMENTO PEAK — Np — CORONA 5303 Å

E — NO DATA — W

$1.15 R_\odot$
$1.35 R_\odot$
$1.55 R_\odot$

Sp

KITT PEAK

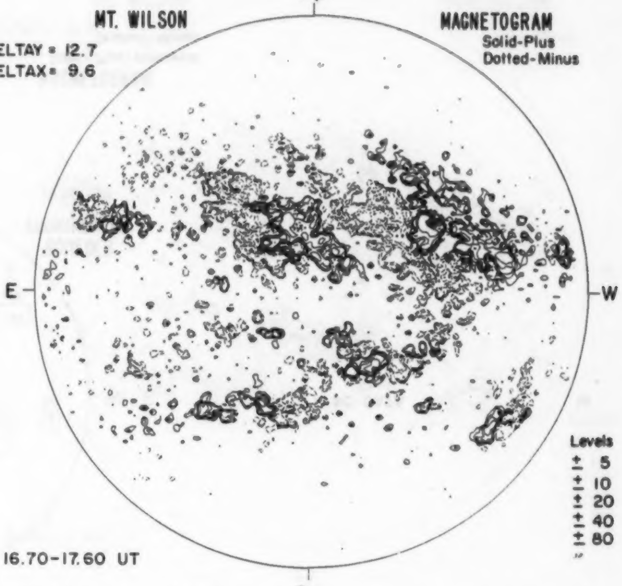
MAGNETOGRAM
Bright-Plus
Dark - Minus

1647 UT

MT. WILSON

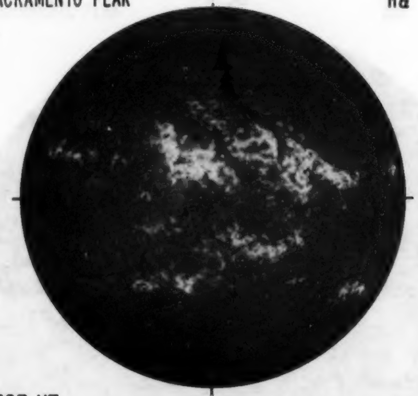
DELTAY = 12.7
DELTAX = 9.6

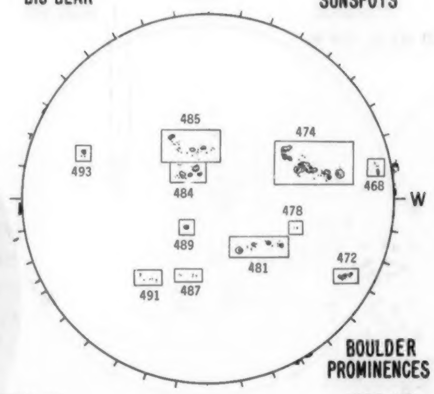
MAGNETOGRAM
Solid-Plus
Dotted-Minus



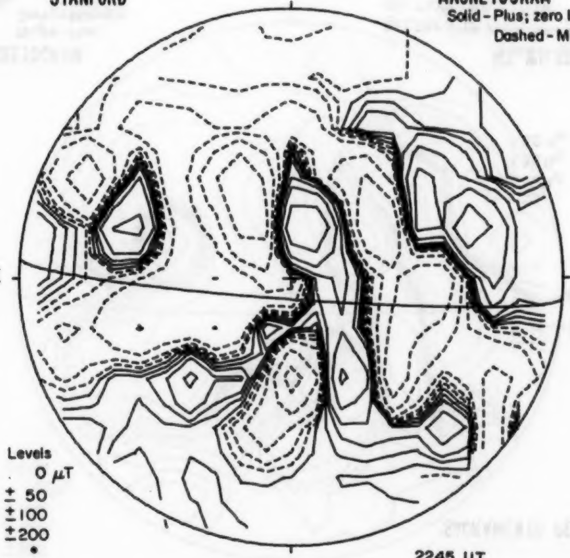
16.70-17.60 UT

17

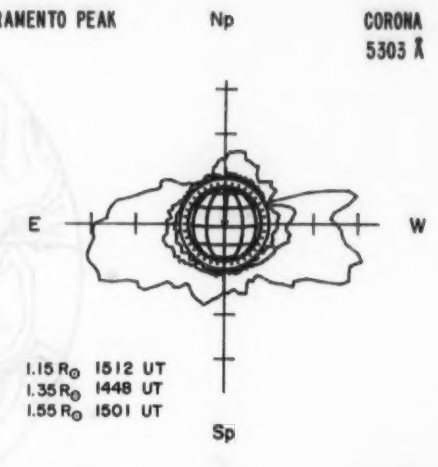


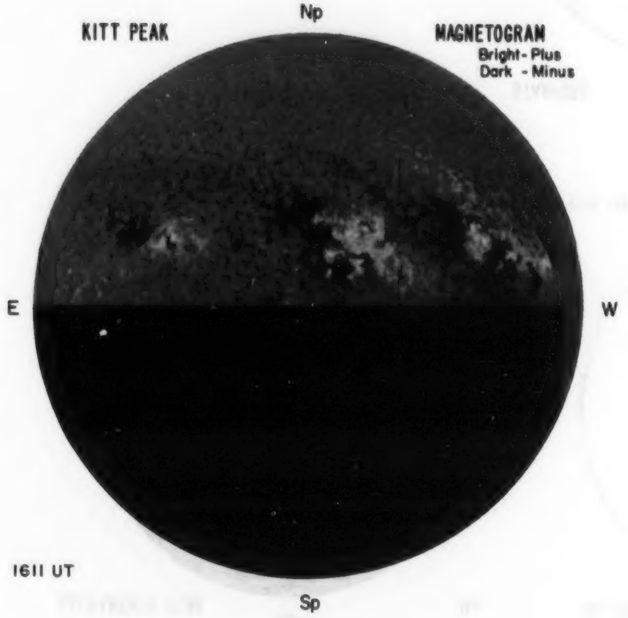


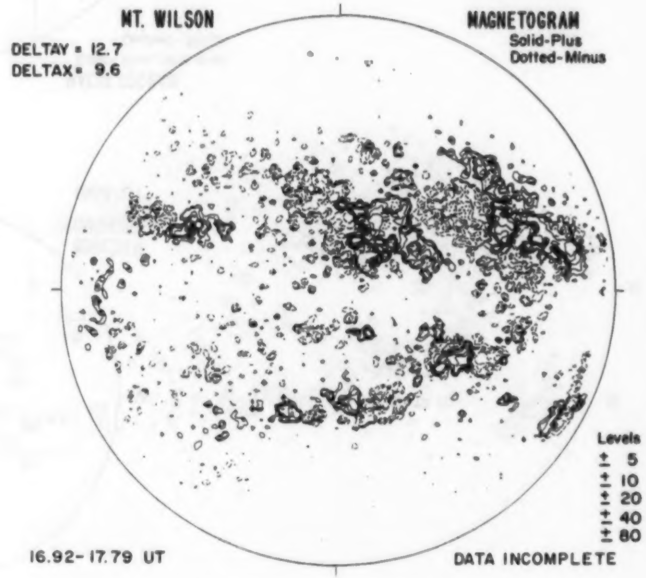
BIG BEAR
Np
ACTIVE REGIONS
E
NO DATA
W
Sp



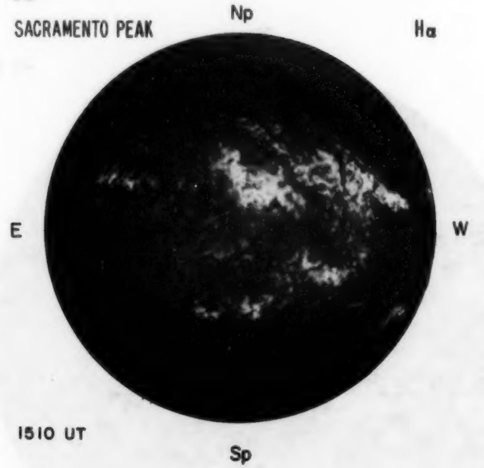
JULY 18, 1982 (P= 4.80, B_o = 4.61, L_o = 283.14)

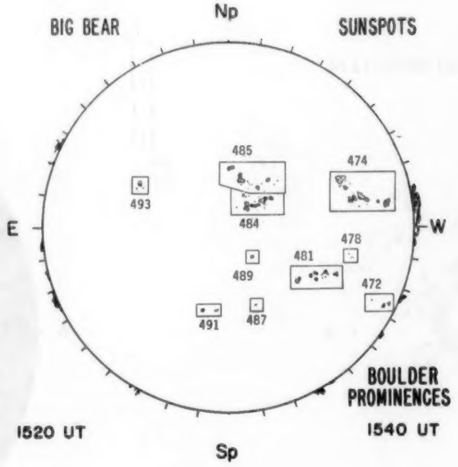


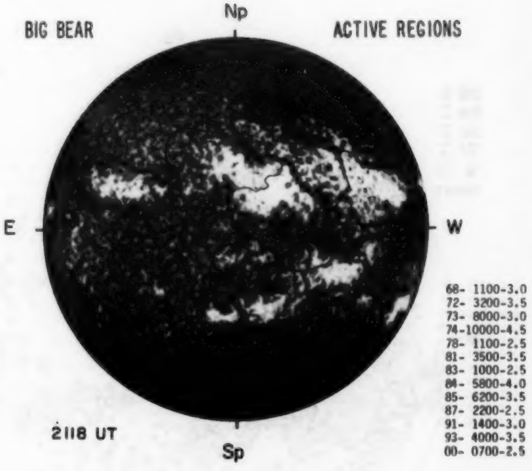


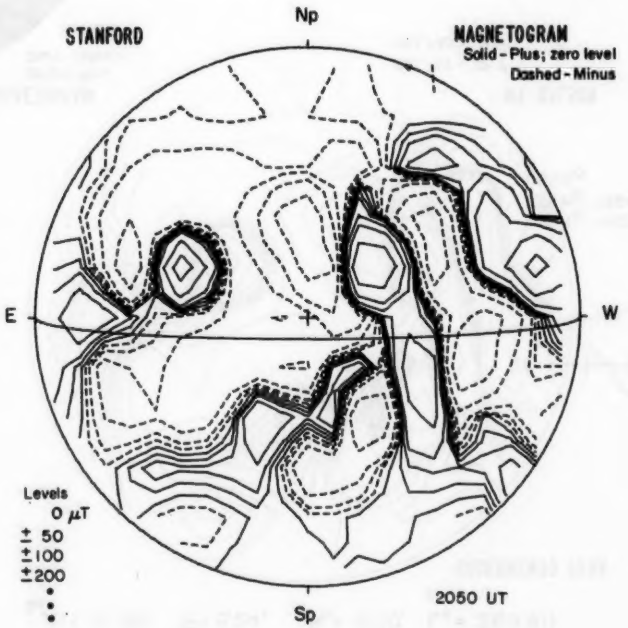


18


SACRAMENTO PEAK
Np
Hα
E
W
Sp
1510 UT

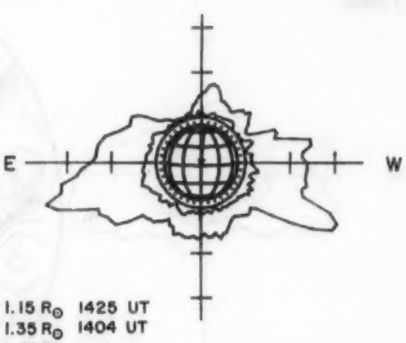

BIG BEAR
Np
SUNSPOTS
E
W
485
474
493
484
478
489
481
472
491
487
BOULDER
PROMINENCES
1520 UT
Sp
1540 UT


BIG BEAR
Np
ACTIVE REGIONS
E
W
Sp
2118 UT
68- 1100-3.0
72- 3200-3.5
73- 8000-3.0
74-10000-4.5
78- 1100-2.5
81- 3500-3.5
83- 1000-2.5
84- 5800-4.0
85- 6200-3.5
87- 2200-2.5
91- 1400-3.0
93- 4000-3.5
00- 0700-2.5


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
2050 UT

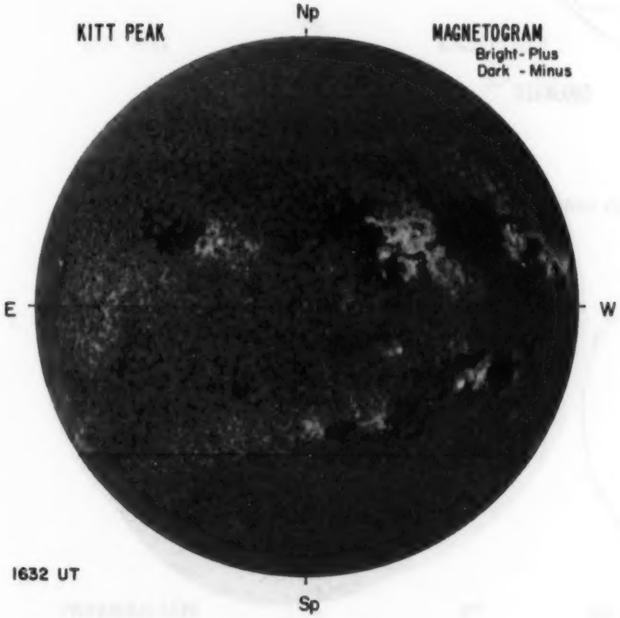
JULY 19, 1982 (P= 5.24, B_o= 4.70, L_o= 269.91)

SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1425 UT
1.35 $R_\odot$ 1404 UT
1.55 $R_\odot$

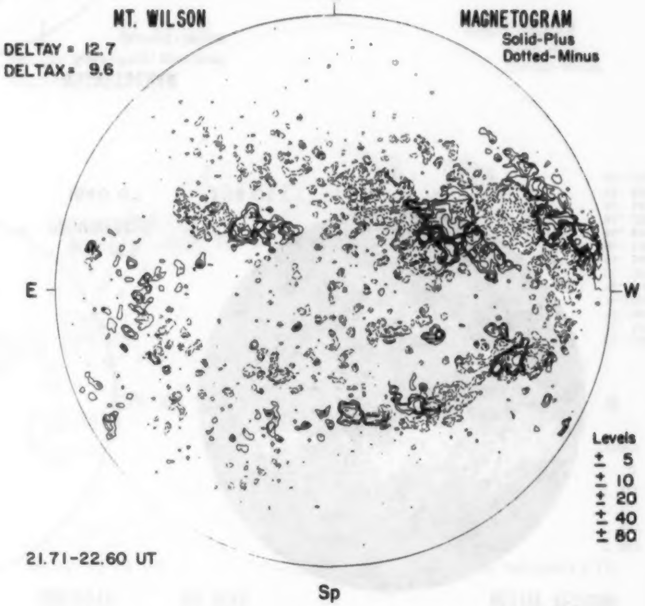
KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus



1632 UT

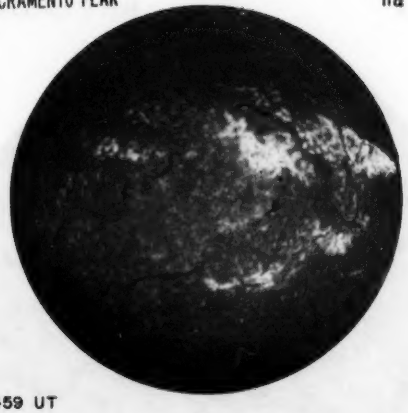
MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

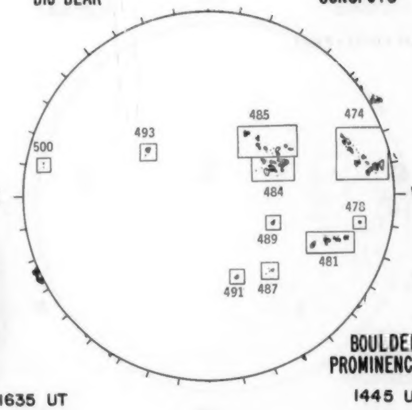
DELTAY = 12.7
DELTAX = 9.6



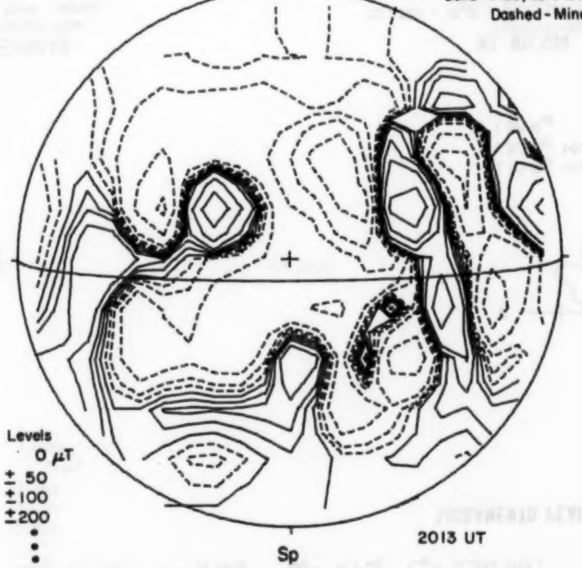
21.71-22.60 UT

19





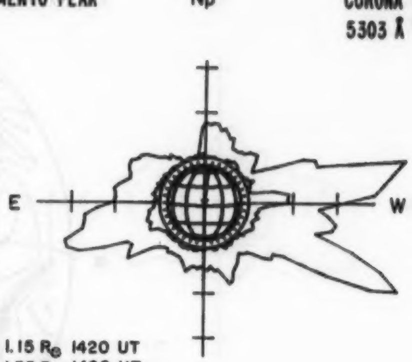
72- 1700-3.5
73- 7500-2.5
74-10300-4.0
81- 3500-3.0
83- 0800-2.5
84- 5700-4.0
85- 6000-3.5
87- 1700-2.5
91- 0°00-3.0
93- 3700-3.0
00- 0500-2.5



JULY 20, 1982 (P= 5.68, B_o = 4.79, L_o = 256.68)

SACRAMENTO PEAK

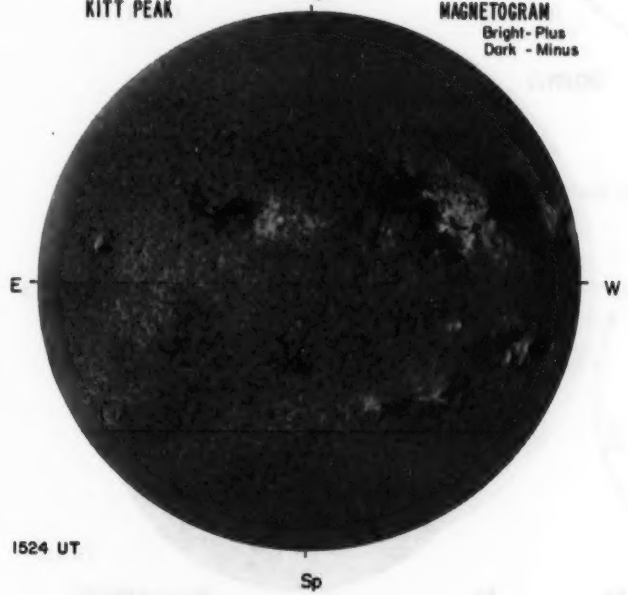
CORONA
5303 Å



1.15 $R_\odot$ 1420 UT
1.35 $R_\odot$ 1400 UT
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

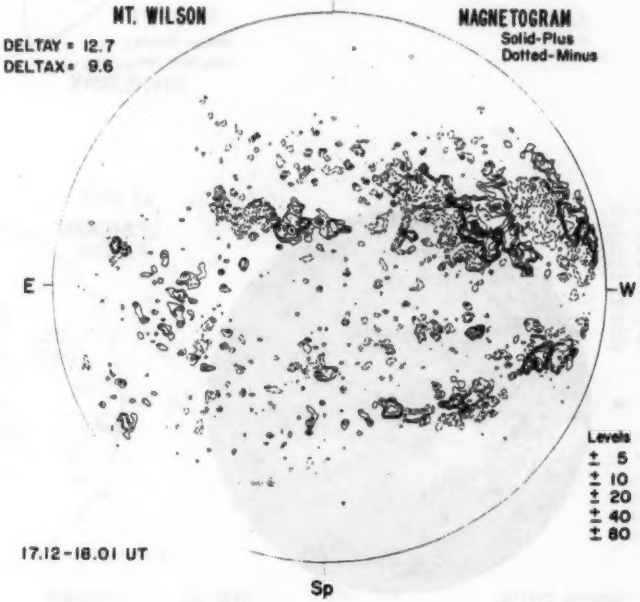


1524 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.6

MAGNETOGRAM
Solid-Plus
Dotted-Minus

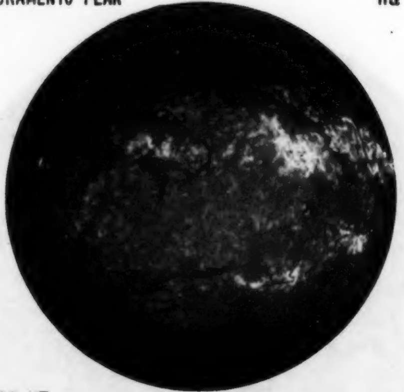


17.12-18.01 UT

20

SACRAMENTO PEAK Np Hα

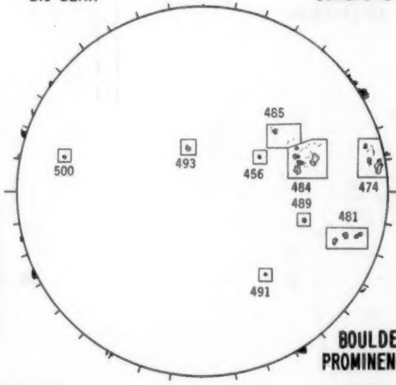
E W



1509 UT Sp

BIG BEAR Np SUNSPOTS

E W

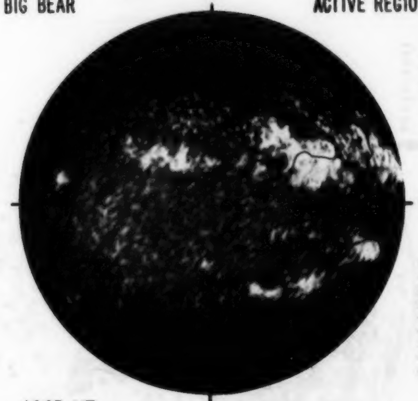


BOULDER
PROMINENCES

1615 UT Sp 1415 UT

BIG BEAR Np ACTIVE REGIONS

E W



1445 UT Sp

73- 5800-2.5
74-10000-3.5
81- 3200-3.5
84- 5800-3.5
85- 6000-3.5
87- 1300-2.5
91- 1100-3.0
93- 3700-3.5
00- 0700-3.0

STANFORD Np MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

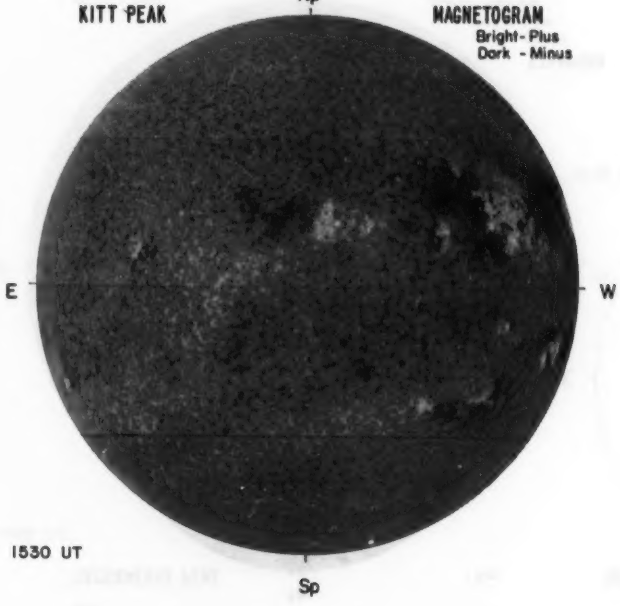
JULY 21, 1982 (P= 6.11, B_o= 4.88, L_o= 243.45)

SACRAMENTO PEAK

CORONA
5303 Å

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

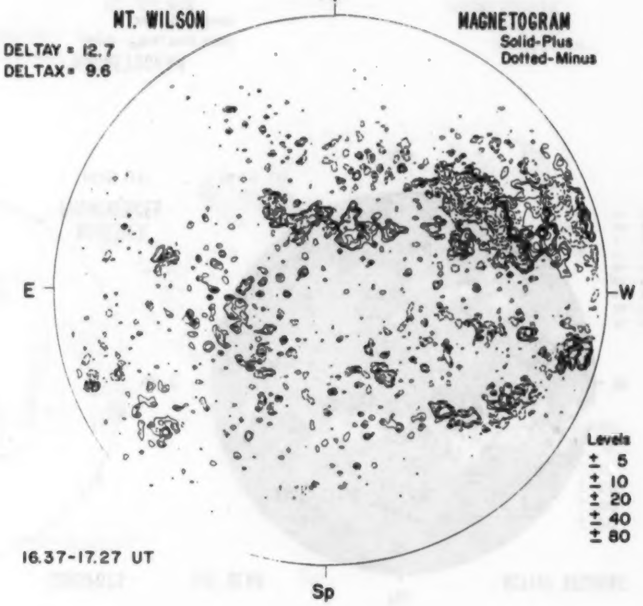


1530 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

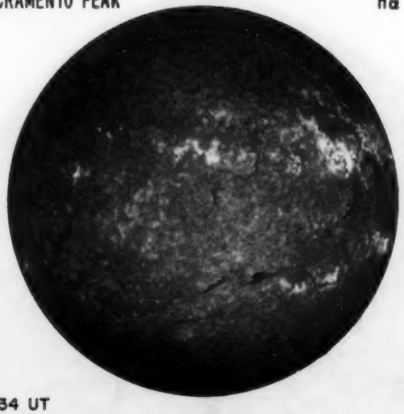


16.37-17.27 UT

21

SACRAMENTO PEAK Hα

Np

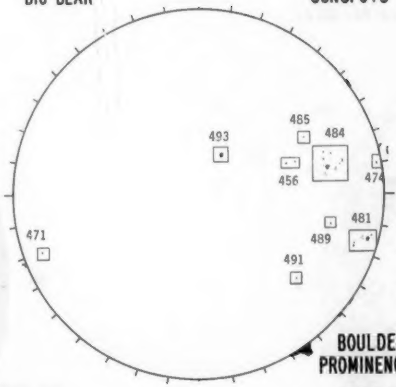
E  W

1534 UT

Sp

BIG BEAR SUNSPOTS

Np

E  W

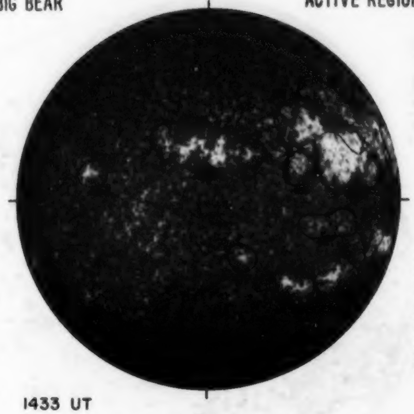
BOULDER PROMINENCES

1630 UT 1500 UT

Sp

BIG BEAR ACTIVE REGIONS

Np

E  W

1433 UT

Sp

71- 0200-2.5
73- 4000-2.5
81- 2800-3.0
84- 6500-3.5
85- 5500-3.0
87- 0900-2.5
91- 1100-2.5
93- 3500-3.0
00- 0500-3.0

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

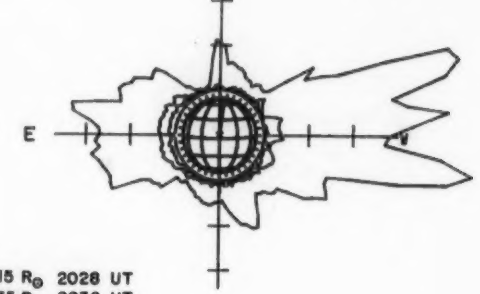
Sp

Levels
0 μT
± 50
±100
±200

JULY 22, 1982 (P= 6.54, B_o= 4.97, L_o= 230.22)

SACRAMENTO PEAK

CORONA
5303 Å



1.15 $R_\odot$ 2028 UT
1.35 $R_\odot$ 2036 UT
1.55 $R_\odot$ 2045 UT

KITT PEAK

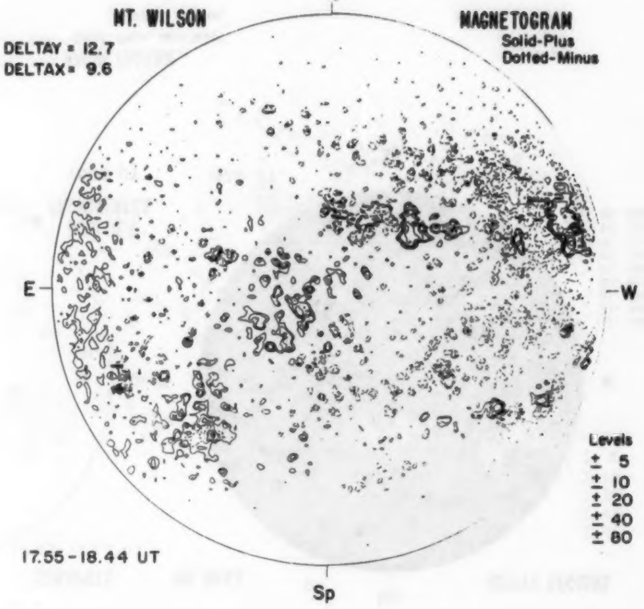
MAGNETOGRAM
Bright-Plus
Dark - Minus

1431 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX= 9.6



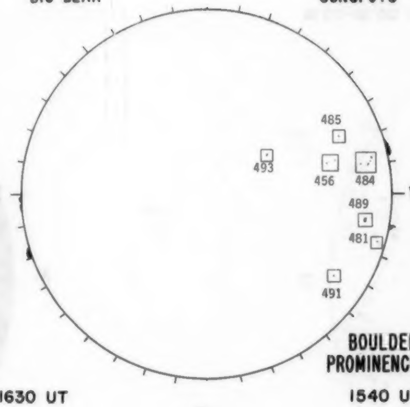
17.55-18.44 UT

22

SACRAMENTO PEAK Hα

1407 UT

BIG BEAR SUNSPOTS



1630 UT

BOULDER PROMINENCES

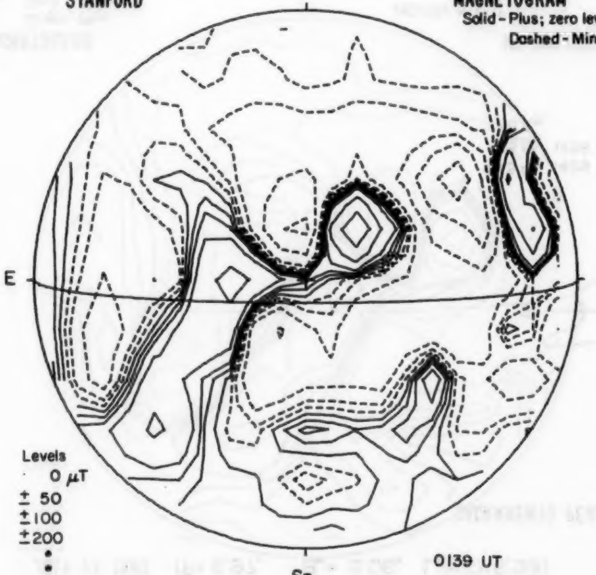
1540 UT

BIG BEAR ACTIVE REGIONS

56- 0600-2.5
71- 0300-3.0
81- 0800-3.0
83- 0500-2.5
84- 5500-3.5
85- 5000-3.0
87- 0800-2.5
91- 1200-2.5
93- 2700-2.5
00- 0400-2.5

1515 UT

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



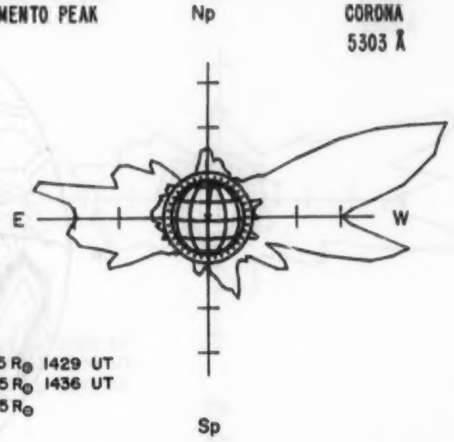
Levels
0 μT
± 50
± 100
± 200

0139 UT

JULY 23, 1982 (P= 6.97, B_o= 5.06, L_o= 216.99)

SACRAMENTO PEAK

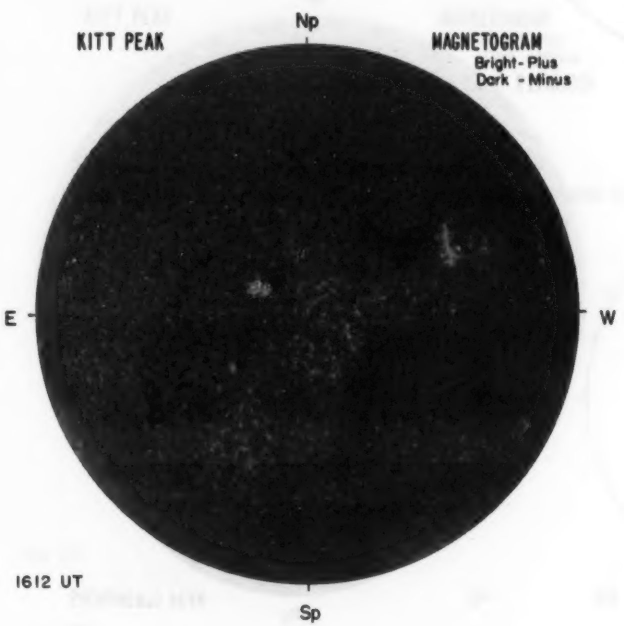
CORONA
5303 Å



1.15 $R_\odot$ 1429 UT
1.35 $R_\odot$ 1436 UT
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

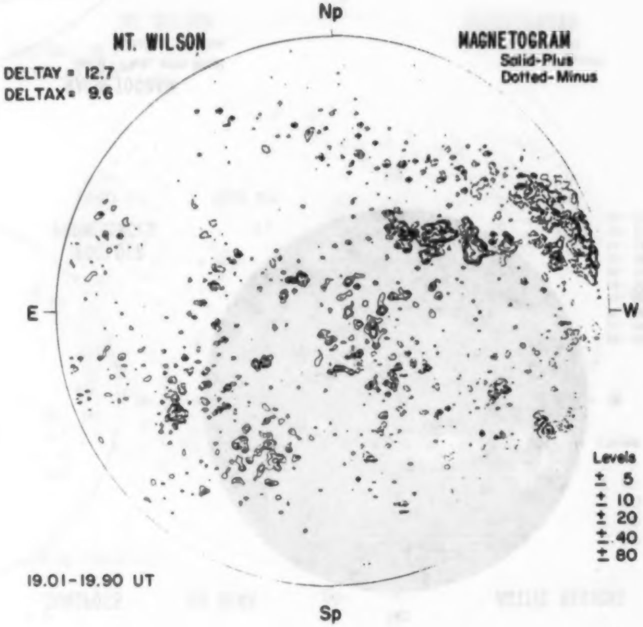


1612 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



19.01-19.90 UT

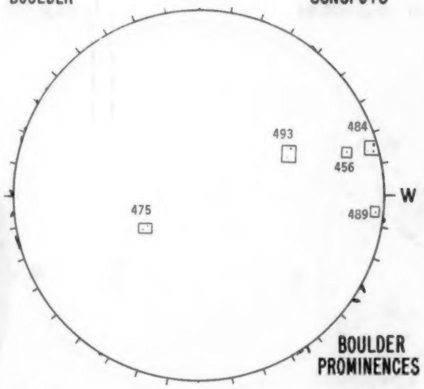
23

SACRAMENTO PEAK Np Hα

E W

1433 UT Sp

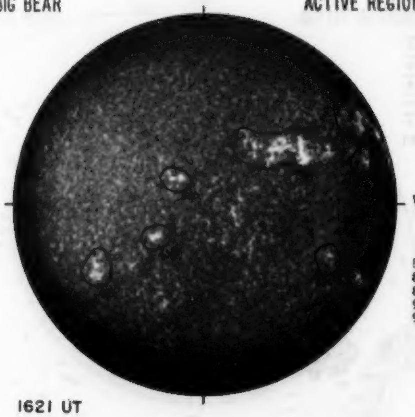
BOULDER Np SUNSPOTS

E  W

BOULDER PROMINENCES

1400 UT Sp 1420 UT

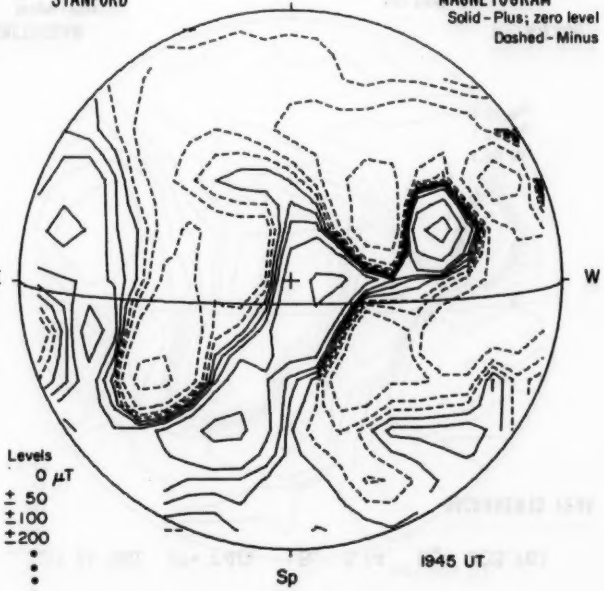
BIG BEAR Np ACTIVE REGIONS

E  W

16- 0500-2.5
84- 3500-3.0
85- 4000-2.5
91- 0800-2.5
93- 2400-2.5

1621 UT Sp

STANFORD Np MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E  W

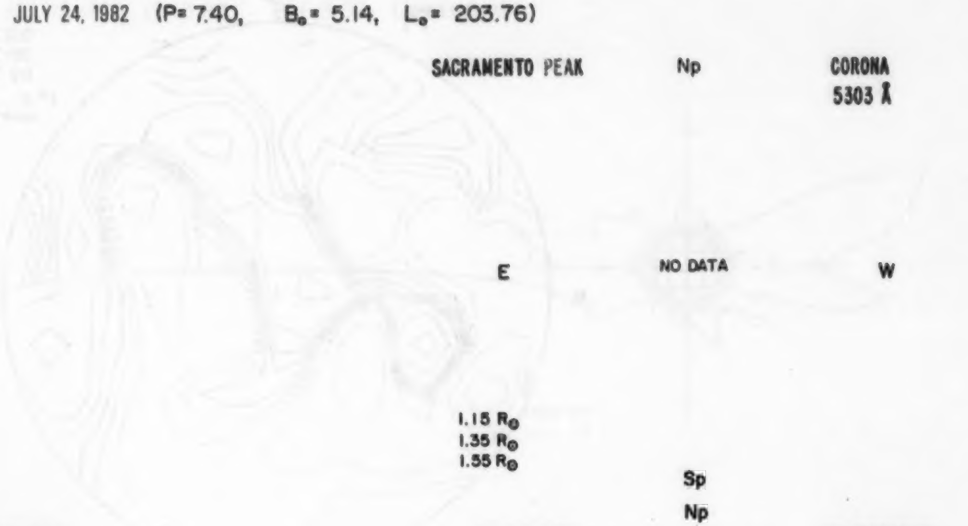
Levels
0 μT
± 50
±100
±200

1945 UT Sp

JULY 24, 1982 (P= 7.40, B_o= 5.14, L_o= 203.76)

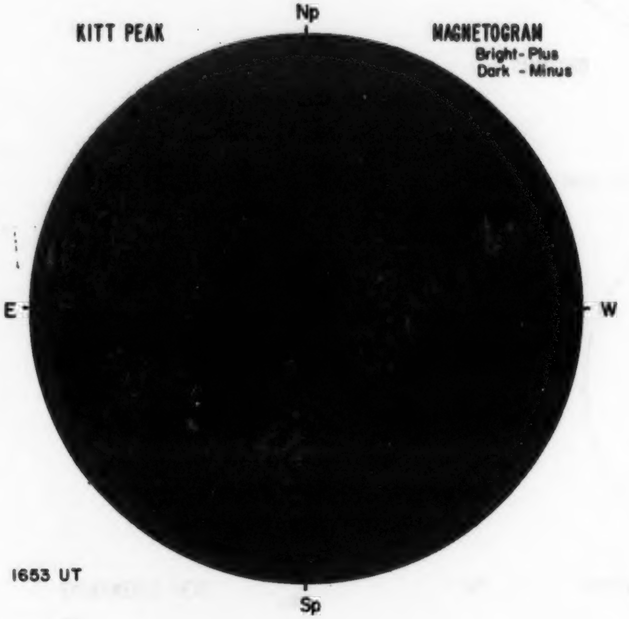
SACRAMENTO PEAK

CORONA
5303 Å



KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

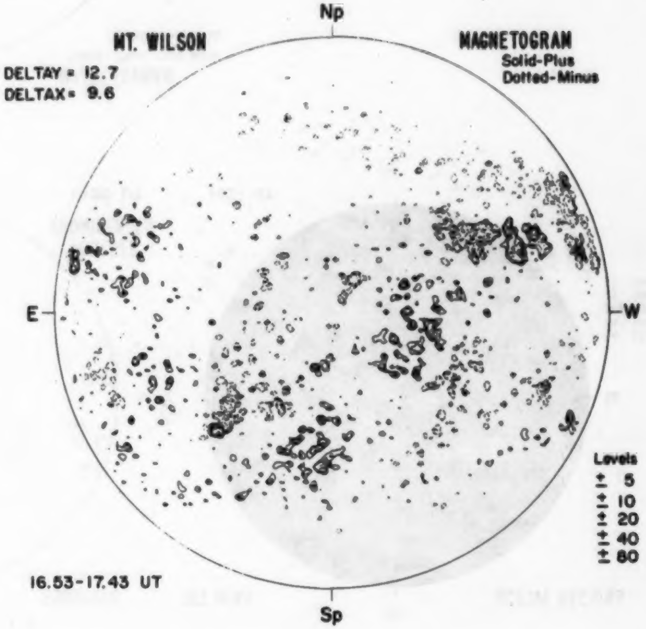


1653 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



16.53-17.43 UT

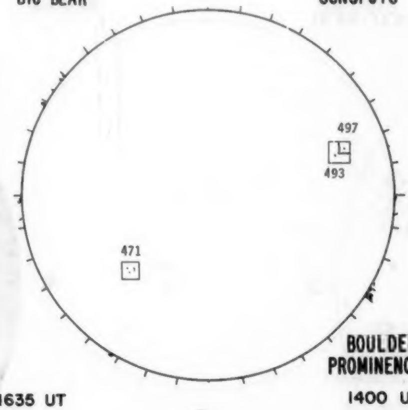
24

SACRAMENTO PEAK Np Hα

E W

1432 UT Sp

BIG BEAR Np SUNSPOTS

E 

W

BOULDER
PROMINENCES

1635 UT Sp 1400 UT

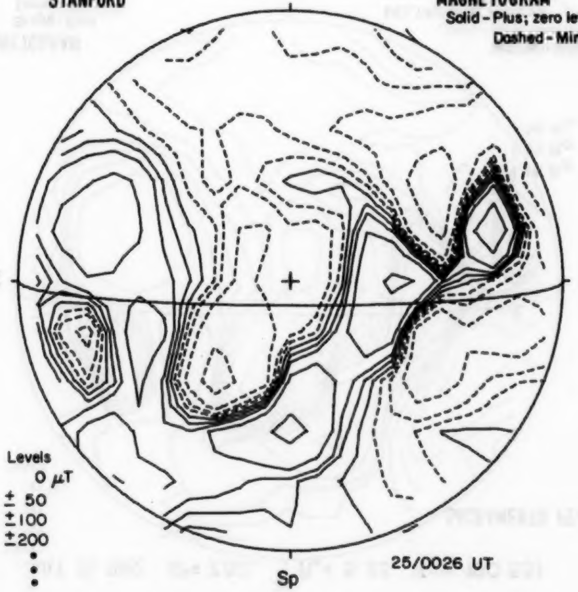
BIG BEAR Np ACTIVE REGIONS

E W

1730 UT Sp

71- 1200-3.5
76- 2000-3.0
77- 0100-3.0
84- 2500-3.0
85- 3300-3.0
91- 0600-3.0
93- 2500-2.5
97- 0700-3.5

STANFORD Np MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E  W

Levels
0 μT
± 50
± 100
± 200

25/0026 UT Sp

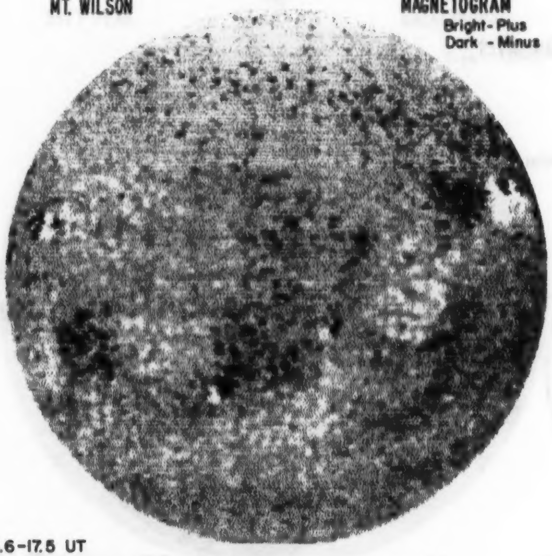
JULY 25, 1982 (P= 7.82, B_o= 5.23, L_o= 190.53)

SACRAMENTO PEAK — Np — CORONA 5303 Å

E — NO DATA — W

1.15 $R_{\odot}$
1.35 $R_{\odot}$
1.55 $R_{\odot}$

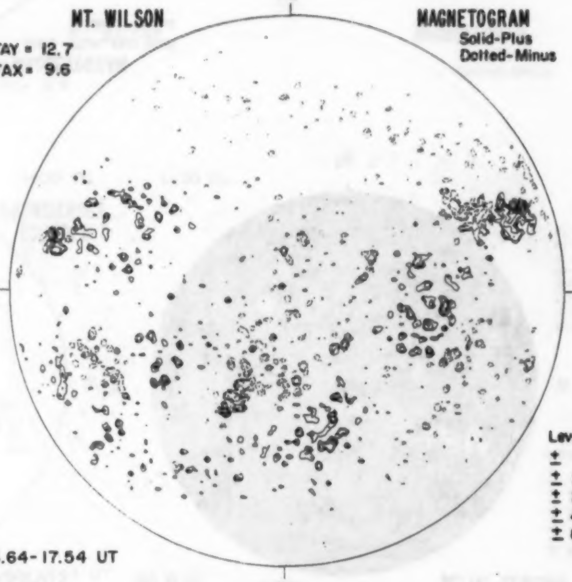
MT. WILSON — Np — MAGNETOGRAM
Bright-Plus
Dark - Minus



16.6-17.5 UT — Sp

MT. WILSON — Sp Np — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

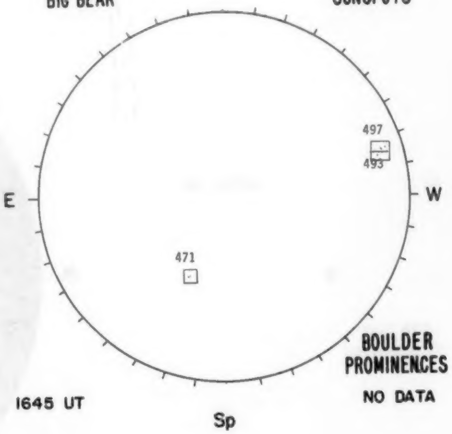


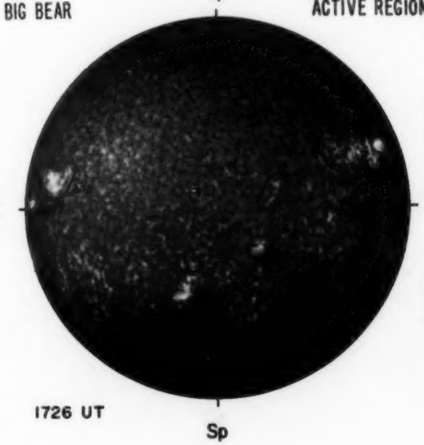
Levels
± 5
± 10
± 20
± 40
± 80

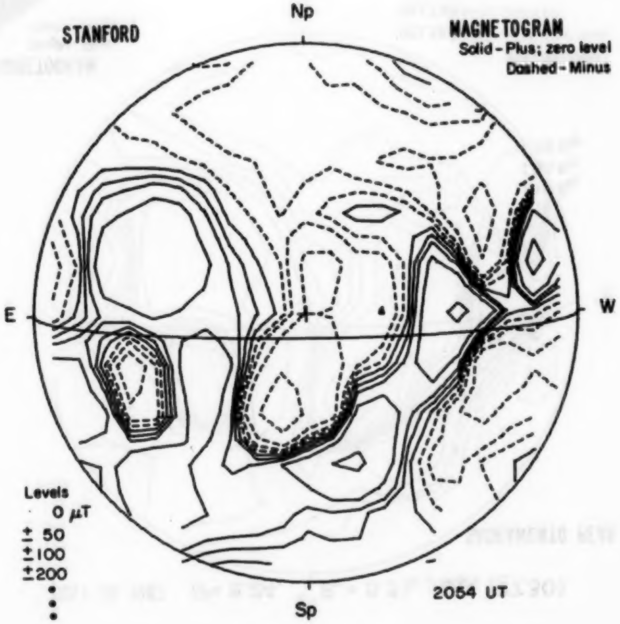
16.64-17.54 UT — Sp

25

SACRAMENTO PEAK
Hα
Np
E
W
Sp
1531 UT


BIG BEAR
SUNSPOTS
Np
E
W
Sp
497
493
471
1645 UT
BOULDER
PROMINENCES
NO DATA


BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
1726 UT
71- 1000-2.5
76- 1500-3.0
93- 2100-2.5
97- 1000-3.5
07- 0300-2.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
2054 UT

JULY 26, 1982 (P= 8.24, B_o= 5.31, L_o= 177.30)

SACRAMENTO PEAK

CORONA
5303 Å

Np

E NO DATA W

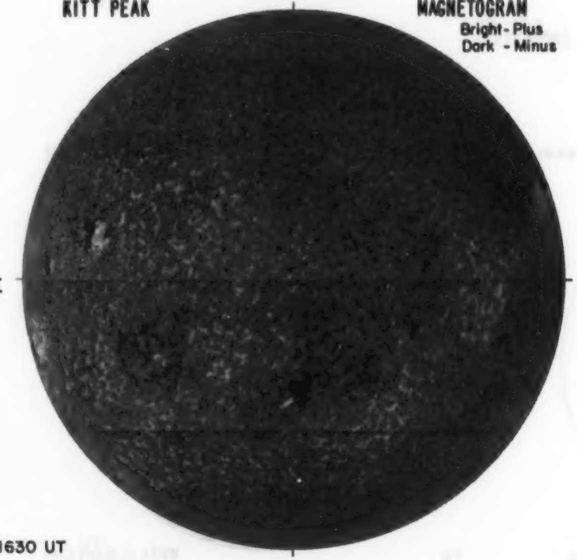
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

Np

E  W

Sp

1630 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

Np

E

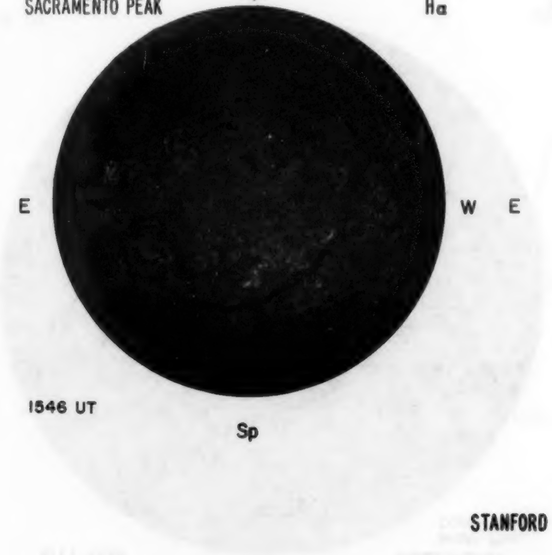
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

26

SACRAMENTO PEAK Hα



BIG BEAR SUNSPOTS

Np

E NO DATA W

Sp

BIG BEAR ACTIVE REGIONS

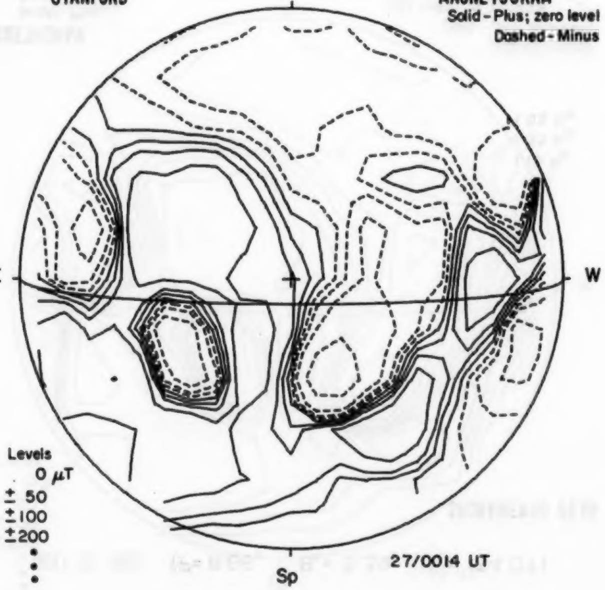
Np

E NO DATA W

Sp

BOULDER PROMINENCES

STANFORD MAGNETOGRAM



JULY 27, 1982 (P= 8.66, B_o= 5.39, L_o= 164.07)

SACRAMENTO PEAK — CORONA 5303 Å

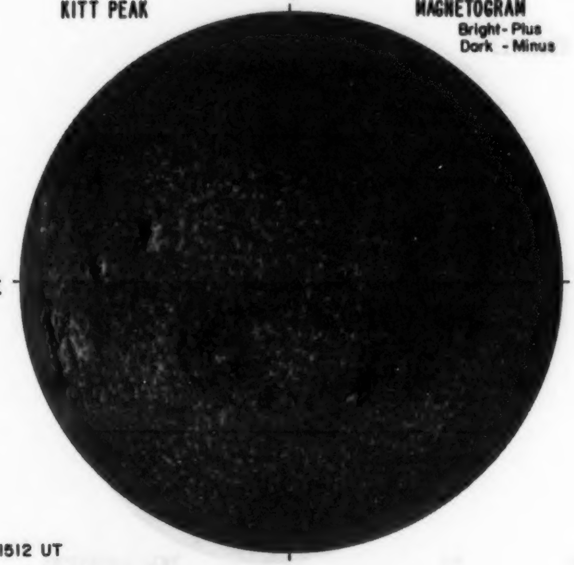
Np

E — NO DATA — W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

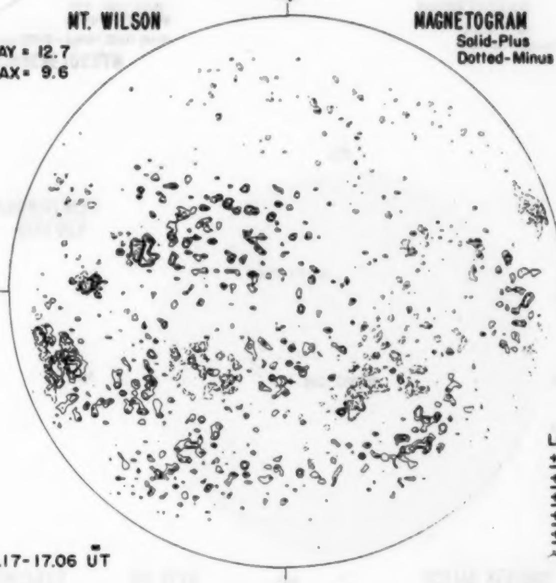
KITT PEAK — MAGNETOGRAM
Bright-Plus
Dark - Minus



1512 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX= 9.6



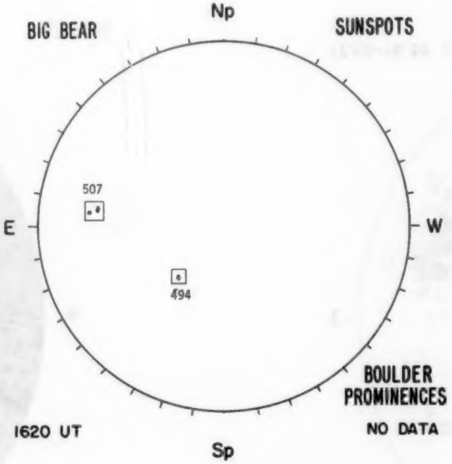
16.17-17.06 UT

27

SACRAMENTO PEAK — Hα

2224 UT

BIG BEAR — SUNSPOTS



1620 UT

BOULDER PROMINENCES

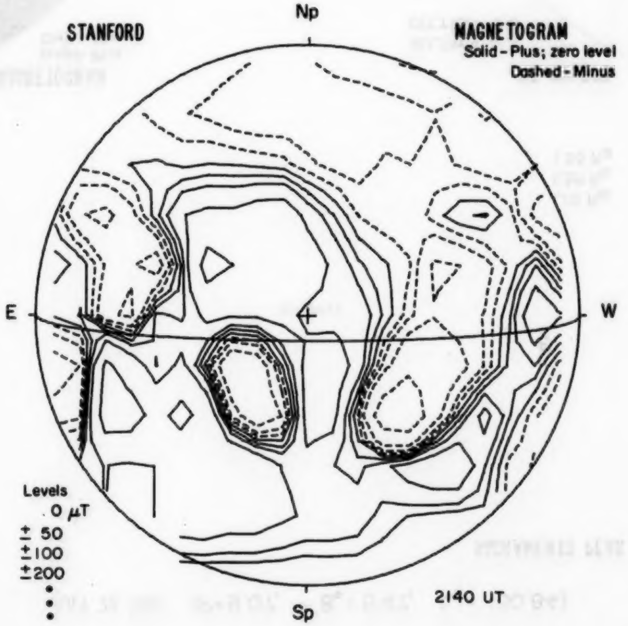
NO DATA

BIG BEAR — ACTIVE REGIONS

1500 UT

STANFORD — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2140 UT

JULY 28, 1982 (P=9.07, B_o = 5.47, L_o = 150.84)

SACRAMENTO PEAK — Np — CORONA 5303 Å

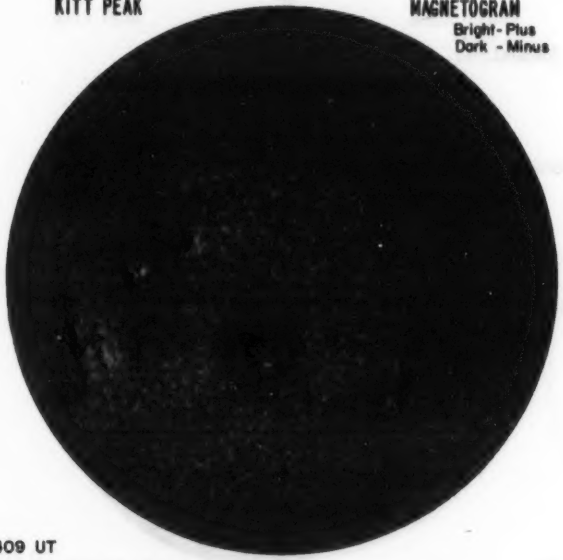
E — NO DATA — W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK — Np — MAGNETOGRAM
Bright-Plus
Dark - Minus

E



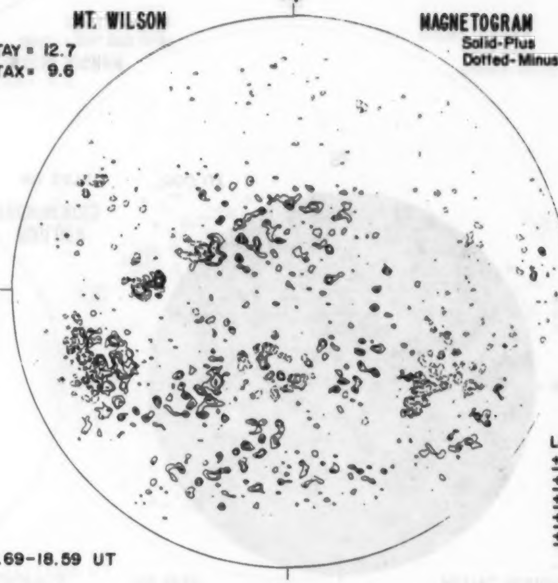
W

1409 UT — Sp

MT. WILSON — Np — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

E



W

Levels
± 5
± 10
± 20
± 40
± 80

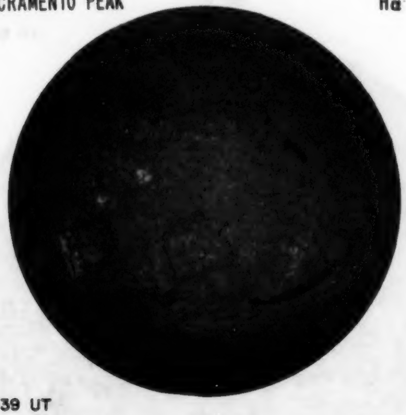
17.69–18.59 UT — Sp

28

SACRAMENTO PEAK Hα

Np

E



W

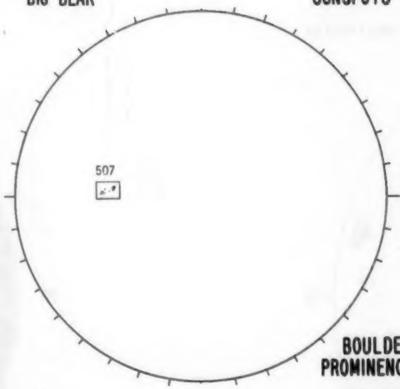
1639 UT

Sp

BIG BEAR SUNSPOTS

Np

E



W

1630 UT

Sp

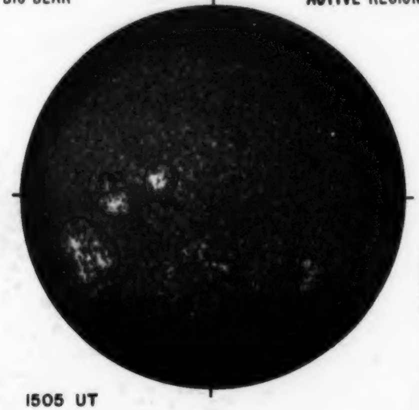
BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS

Np

E



W

76- 0800-2.5
80- 2800-2.5
88- 0100-2.5
92- 0200-3.0
07- 0900-2.5

1505 UT

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

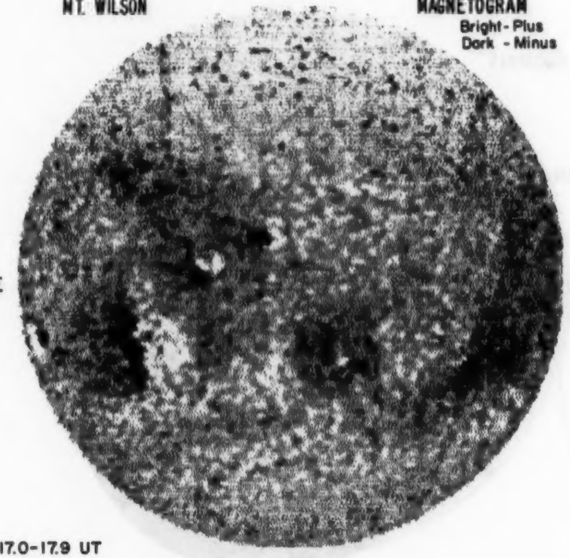
JULY 29, 1982 (P = 9.48, B_o = 5.55, L_o = 137.62)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

MT. WILSON Np MAGNETOGRAM
Bright-Plus
Dark - Minus

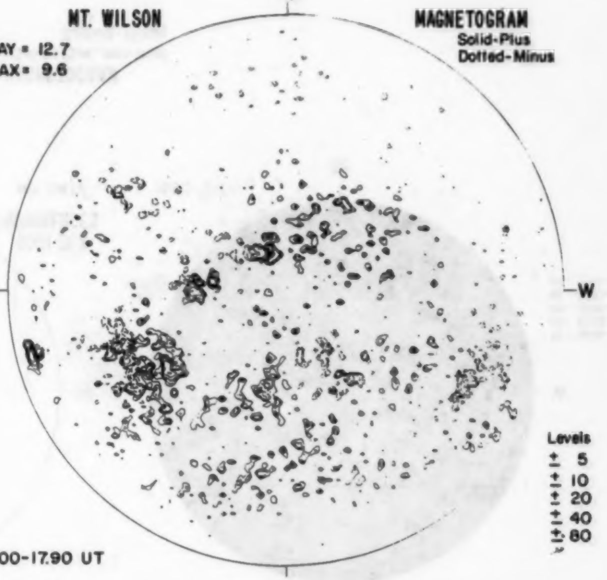


E W
17.0-17.9 UT Sp

Sp
Np

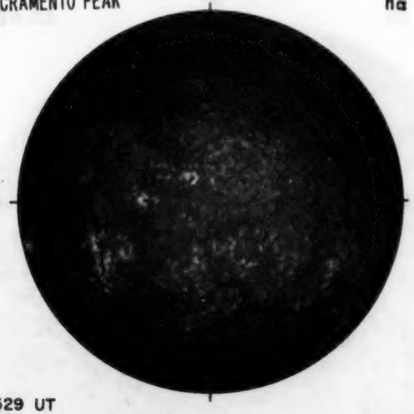
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



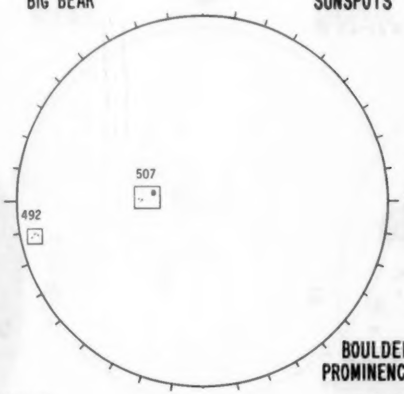
17.00-17.90 UT Sp

SACRAMENTO PEAK Hα



1529 UT

BIG BEAR SUNSPOTS

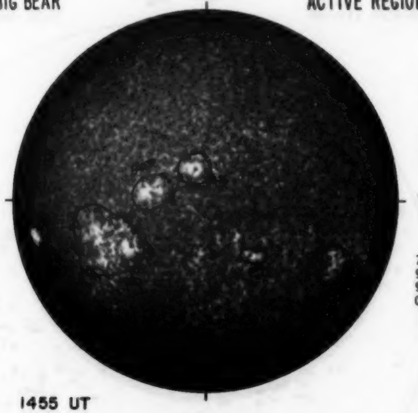


1650 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS



1455 UT

76- 0700-2.5
92- 0800-3.5
94- 0300-2.5
07- 1000-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

JULY 30, 1982 (P= 9.89, B_o= 5.63, L_o= 124.39)

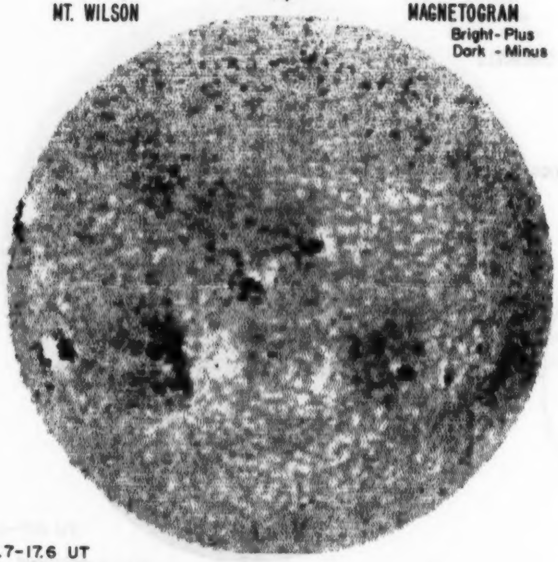
SACRAMENTO PEAK Np CORONA 5303 Å

E - NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

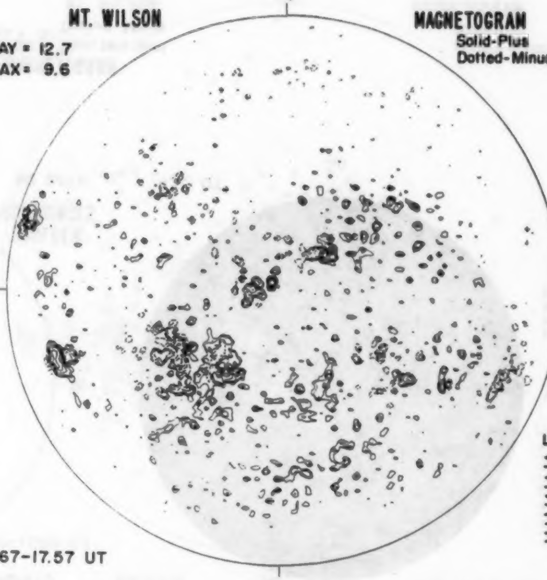
Sp

MT. WILSON Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E  W

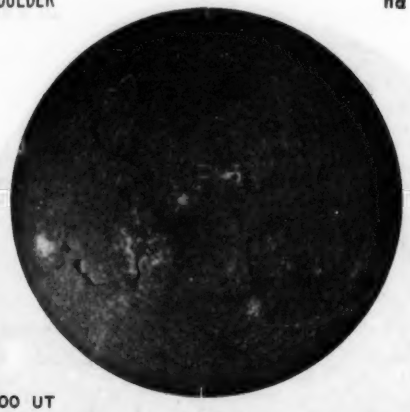
16.7-17.6 UT
Sp

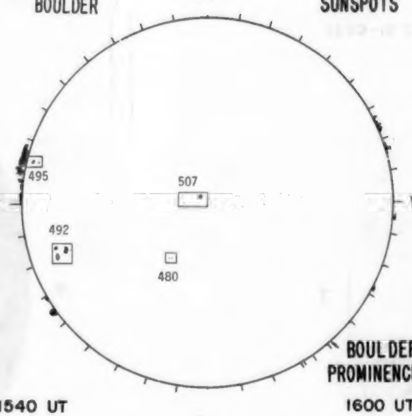
MT. WILSON Np MAGNETOGRAM
DELTAY = 12.7
DELTAX= 9.6
Solid-Plus
Dotted-Minus

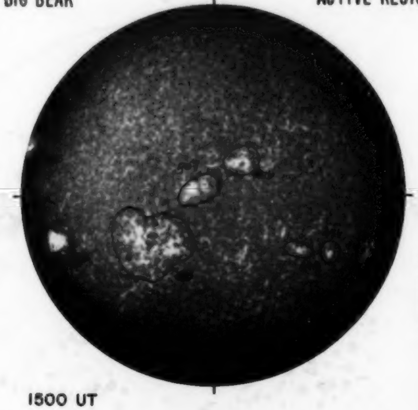
E  W

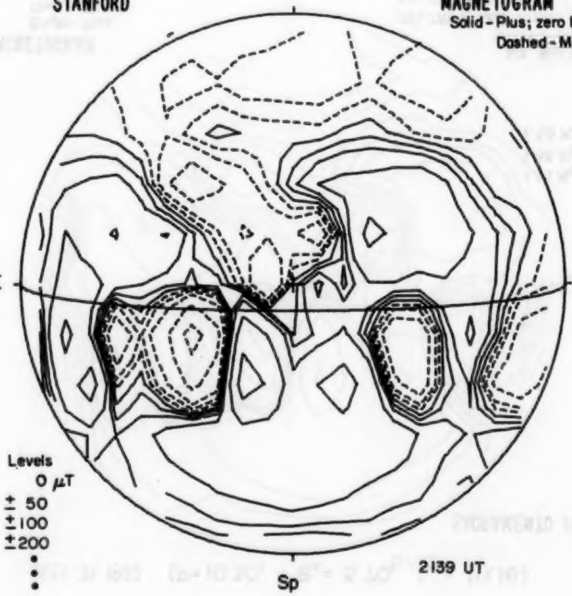
Levels
± 5
± 10
± 20
± 40
± 80

16.67-17.57 UT
Sp


BOULDER
Np
Hα
E
W
1600 UT
Sp


BOULDER
Np
SUNSPOTS
E
W
495
507
492
480
BOULDER
PROMINENCES
1540 UT
1600 UT
Sp


BIG BEAR
Np
ACTIVE REGIONS
E
W
76- 0700-2.5
80- 2100-2.5
92- 2000-4.0
95- 1700-3.0
96- 0100-2.5
07- 0600-2.5
1500 UT
Sp


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
2139 UT
Sp

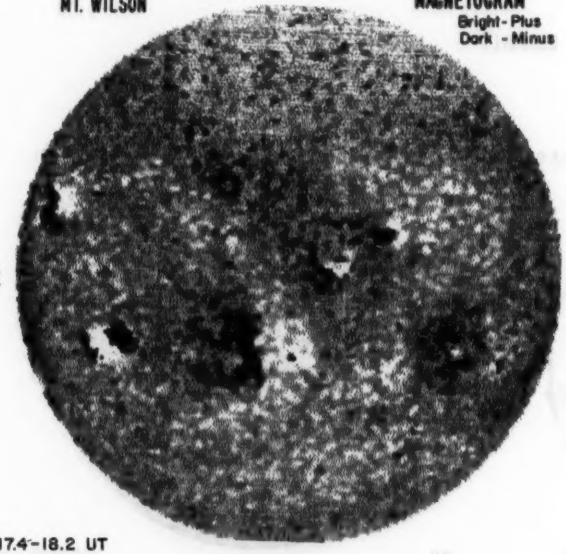
JULY 31, 1982 (P= 10.30, B_0 = 5.70, L_0 = 111.16)

SACRAMENTO PEAK | Np | CORONA 5303 Å

E | NO DATA | W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

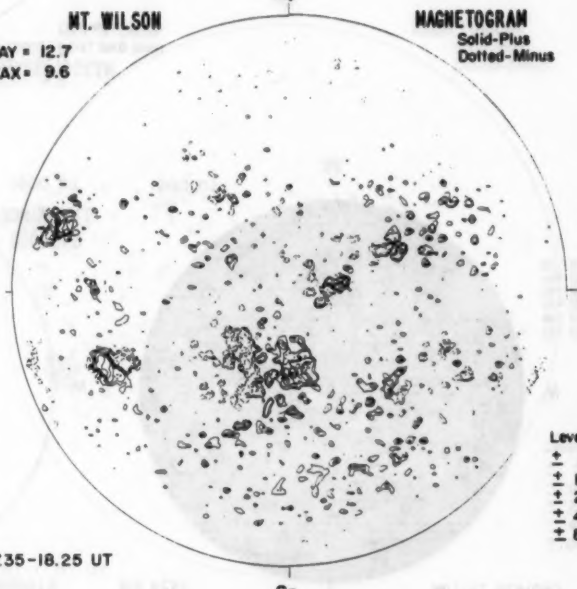
MT. WILSON | MAGNETOGRAM Bright-Plus Dark-Minus



17.4-18.2 UT

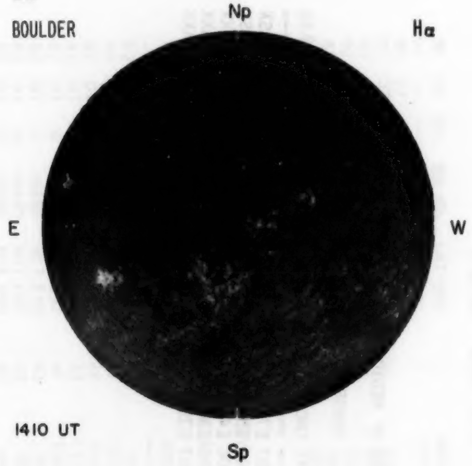
MT. WILSON | MAGNETOGRAM Solid-Plus Dotted-Minus

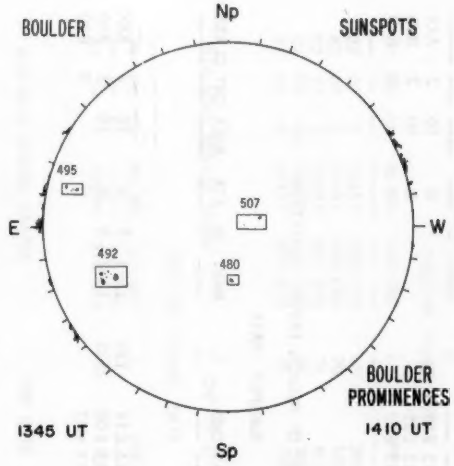
DELTAY = 12.7
DELTAX = 9.6

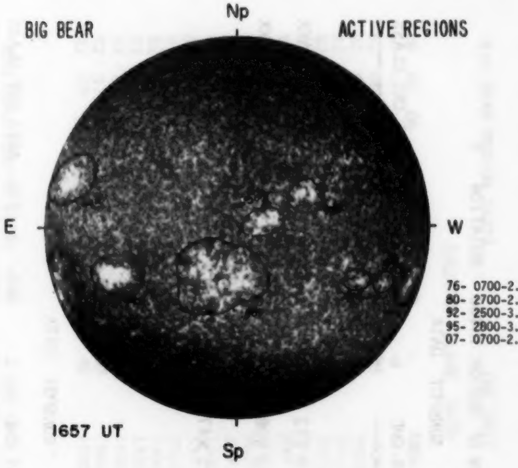


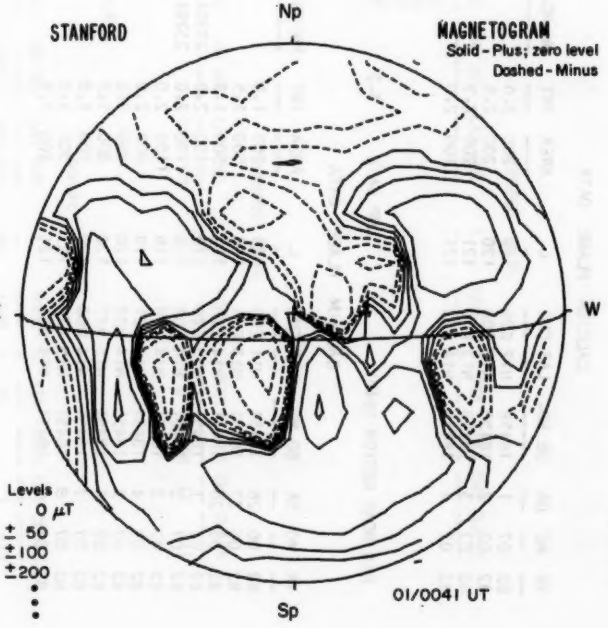
17.35-18.25 UT

31


BOULDER
Hα
Np
E
W
Sp
1410 UT


BOULDER
SUNSPOTS
Np
E
W
Sp
495
492
507
480
1345 UT
BOULDER
PROMINENCES
1410 UT


BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
1657 UT
76- 0700-2.5
80- 2700-2.5
92- 2500-3.5
95- 2800-3.0
07- 0700-2.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
01/0041 UT

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18450 CMP DATE 2.6 RETURN OF REGION 18406 ROTATION 5

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	26	18450	S14	E70	135	900	1.5										
82	06	27	18450	S14	E65	127	1100	2.0										
82	06	28	18450	S12	E51	127	1100	2.0										
82	07	1	18450	S14	E08	131	2200	2.0	23200	S10	E12	128	(AP)	4	H	20	1	AXX
82	07	2	18450	S14	W01	127	2300	2.0										
82	07	3	18450	S14	W15	126	2500	2.5		S12	W08				H		2	AXX
82	07	4	18450	S11	W30	128	2500	2.5										
82	07	5	18450	S12	W43	130	2200	2.0										
82	07	6	18450	S13	W57	130	1800	2.0	23208	S15	W47	121	(AF)	3				
82	07	7	18450	S13	W67	127	500	1.5										
82	07	8	18450	S13	W81	128	400	1.0										

BIG BEAR REGION 18458 CMP DATE 3.1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	1	18458	N12	E20	119	200	3.0		N13	E19				H	10	2	AXX
82	07	2	18458	N12	E06	120	200	2.5		N13	E05				B	10	2	BXO
82	07	3	18458	N13	W10	121	200	2.5		N13	W07				H		2	BXO
82	07	4	18458	N14	W23	121	100	2.0										

BIG BEAR REGION 18451 CMP DATE 3.2 RETURN OF REGION 18398 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	26	18451	N11	E80	125	200	1.0										
82	06	27	18451	N13	E74	118	500	1.5										
82	06	28	18451	N14	E56	122	500	1.5										
82	07	1	18451	N13	E20	119	1100	2.0	23201	N13	E19	121	(AF)	3	H	10	2	AXX
82	07	2	18451	N14	E08	118	1100	2.0	23201	N13	E06	121	(B+)	3	B	10	2	BXO
82	07	3	18451	N14	W08	119	1100	2.0		N13	W07				H		2	BXO
82	07	4	18451	N14	W21	119	900	2.0										
82	07	5	18451	N14	W33	120	800	2.0										
82	07	6	18451	N15	W47	120	800	1.5										
82	07	7	18451	N14	W60	120	500	1.5										
82	07	8	18451	N15	W74	121	300	1.5										
82	07	9	18451	N14	W87	121	200	1.5										

BIG BEAR REGION 18453 CMP DATE 4.3 RETURN OF REGION 18402 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	28	18453	N08	E74	104	500	1.5	23198	N07	E71	108	(AP)	4	H	60	1	HSX
82	06	29	18453							N07	E58				H	40	1	HSX
82	06	30	18453							N08	E46				H	20	1	AXX
82	07	1	18453	N04	E35	104	1200	3.5	23198	N06	E33	107	(B)	3	H	20	1	AXX
82	07	2	18453	N06	E21	105	1300	3.0		N07	E25				L		1	AXX
82	07	3	18453	N06	E06	105	1300	3.0										
82	07	4	18453	N07	W07	105	1100	3.0										
82	07	5	18453	N07	W20	107	900	2.5										
82	07	6	18453	N07	W33	106	1000	2.0										
82	07	7	18453	N07	W46	106	800	2.0										
82	07	8	18453	N07	W58	105	700	1.5										
82	07	9	18453	N07	W72	106	400	1.0										

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18454 CMP DATE 5.2 RETURN OF REGION 18405 ROTATION 2

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	28	18454	S07	E79	99	300	1.0										
82	07	1	18454	S11	E48	91	3500	3.0	23203	S12	E56	84	(B)	3	H	20	3	CRO
82	07	1	18454	S11	E48	91	3500	3.0	23202	S09	E55	85	(AP)	4	H	20	3	CRO
82	07	2	18454	S09	E34	92	3900	3.0	23203	S12	E42	85	(BP)	3	B	20	3	BXO
82	07	2	18454	S09	E34	92	3900	3.0	23202	S09	E41	86	(AP)	3	B	10	1	AXX
82	07	2	18454	S09	E34	92	3900	3.0	23204	S08	E26	101	(B)	3	R	30	5	BXO
82	07	3	18454	S09	E19	92	4300	3.0		S07	E21				H		1	AXX
82	07	4	18454	S09	E07	91	3800	3.5	23204	S06	E07	92	(AF)	2	H	30	6	BXO
82	07	4	18454	S09	E07	91	3800	3.5	23203	S11	E15	84	(BF)	4	H	30	6	BXO
82	07	5	18454	S09	W06	93	3300	3.0	23203	S11	E02	84	(BF)	4	R	20	16	BXO
82	07	5	18454	S09	W06	93	3300	3.0	23204	S02	W03	89	(AF)	3				
82	07	6	18454	S09	W20	93	3500	3.0	23203	S11	W11	85	(AF)	4	H	30	5	CAO
82	07	7	18454	S09	W34	94	3300	3.0		S11	W28				B	10	2	AXX
82	07	8	18454	S09	W47	94	3300	3.0	23210	S14	W42	89	(AP)	3				
82	07	9	18454	S09	W60	94	3100	2.5										
82	07	10	18454	S08	W74	93	2600	2.5										
82	07	11	18454	S07	W87	92	1000	2.5										

BIG BEAR REGION 18457 CMP DATE 6.8

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	07	1	18457	N06	E70	69	300	1.5										
82	07	2	18457	N08	E56	70	300	1.0										
82	07	3	18457	N07	E40	71	400	1.5										
82	07	4	18457	N11	E27	71	300	1.0										
82	07	5	18457	N10	E16	71	200	1.0										

BIG BEAR REGION 18466 CMP DATE 7.0

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	07	5	18466	S14	E18	69	100	1.0		S11	E09				L	90	17	DRI

BIG BEAR REGION 18475A CMP DATE 7.5

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	07	8	18475A						23211	S15	W13	60	(AP)	2	B		1	AXX
82	07	9	18475A	S12	W28	62	200	3.0	23211	S10	W28	62	(B)	2	H	10	3	BXO
82	07	10	18475A	S09	W43	62	400	2.0	23211	S10	W41	61	(B)	4	H	30	5	CSO
82	07	11	18475A	S09	W57	62	400	2.5	23211	S10	W58	65	(AP)	3	H		2	AXX
82	07	12	18475A	S09	W70	62	300	2.0										
82	07	13	18475A	S10	W74	55	300	1.0										

BIG BEAR REGION 18460 CMP DATE 9.0 NEW, IN AREA OF REGIONS 18411 AND 18419

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	07	2	18460	N14	E88	38	400	2.5	23205	N17	E80	47	(AP)	2	P	30	1	AXX
82	07	3	18460	N14	E70	41	1600	3.0		N17	E70				H	10	3	BXO
82	07	4	18460	N15	E57	41	1500	3.5	23205	N18	E54	45	(AP)	3	H		1	AXX
82	07	5	18460	N16	E44	43	1100	3.5		N17	E50				L		1	AXX
82	07	6	18460	N17	E32	41	1000	3.5										
82	07	7	18460	N17	E18	42	700	3.0		N18	E28				H	20	1	HSX
82	07	8	18460	N17	E05	42	800	2.5	23212	N18	E04	43	(AP)	3	B	10	4	BXO
82	07	9	18460	N16	W09	43	600	2.5										
82	07	10	18460	N17	W23	42	700	2.5		N18	W16				H	10	3	BXO
82	07	11	18460	N17	W37	42	500	2.5		N18	W29				H	10	3	BXO

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18460 (CONT) CMP DATE 9.0 NEW, IN AREA OF REGIONS 18411 AND 18419

CALCIUM PLAGE DATA — SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	12	18460	N10	W50	42	400	2.5		N14	W44				H	40	7	CSO
82	07	13	18460	N19	W64	45	400	1.0		N15	W62				H	10	2	BXO
82	07	14	18460	N10	W76	44	200	1.0		N14	W74				H		1	AXX

BIG BEAR REGION 18461 CMP DATE 9.4

CALCIUM PLAGE DATA — SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	3	18461	S27	E79	32	400	1.5										
82	07	4	18461	S27	E65	33	400	2.0										
82	07	5	18461	S27	E50	37	400	2.0										
82	07	6	18461	S27	E36	37	400	2.0										
82	07	7	18461	S27	E23	37	400	2.0										
82	07	8	18461	S27	E11	36	300	1.5										
82	07	9	18461	S28	W03	37	400	1.5										
82	07	10	18461	S27	W17	36	400	2.0										

BIG BEAR REGION 18479 CMP DATE 9.4

CALCIUM PLAGE DATA — SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	10	18479	N18	W17	36	200	2.0	23217	N18	W16	36	(B)	4	H	10	3	BXO
82	07	11	18479	N17	W32	37	500	2.5	23217	N16	W30	37	(B)	3	H	10	3	BXO
82	07	12	18479	N17	W45	37	600	2.5	23217	N16	W44	38	(B)	4	H	40	7	CSO
82	07	13	18479	N17	W56	37	600	2.5	23217	N16	W57	38	(B)	4	H	10	2	BXO
82	07	14	18479	N17	W70	38	500	2.5	23217	N16	W70	38	(AP)	3	H		1	AXX

BIG BEAR REGION 18467 CMP DATE 9.7 RETURN OF REGION 18409 ROTATION 2

CALCIUM PLAGE DATA — SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	4	18467	N03	E67	31	400	2.0										
82	07	5	18467	N03	E54	33	400	1.0										
82	07	6	18467	N04	E39	34	400	1.5										
82	07	7	18467	N05	E27	33	300	1.5										

BIG BEAR REGION 18482 CMP DATE 10.1

CALCIUM PLAGE DATA — SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	11	18482	N11	W23	28	100	2.0										
82	07	12	18482	N12	W36	28	300	2.5	23220	N11	W34	28	(B)	3	H	20	7	CSO
82	07	13	18482	N11	W48	29	400	2.5	23220	N10	W48	29	(B)	4	H	10	2	AXX
82	07	14	18482	N12	W63	31	300	2.5	23220	N11	W57	25	AP	1	L	10	3	BXO

BIG BEAR REGION 18462 CMP DATE 10.3 RETURN OF REGION 18410 ROTATION 2

CALCIUM PLAGE DATA — SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	3	18462	S18	E85	26	1500	3.5										
82	07	4	18462	S18	E71	27	2600	3.5	23207	S14	E74	25	(AF)	3	H	10	1	AXX
82	07	4	18462	S18	E71	27	2600	3.5	23206	S17	E67	32	(AP)	3	H	30	1	AXX
82	07	5	18462	S18	E58	29	2800	3.5	23207	S15	E60	26	(D)	4	H	70	3	DAO
82	07	5	18462	S18	E58	29	2800	3.5	23206	S17	E54	32	(AP)	4	H	70	3	DAO
82	07	6	18462	S18	E46	27	2700	3.0	23206	S17	E42	32	(AF)	4	H	30	1	HSX

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18462 (CONT) CMP DATE 10.3 RETURN OF REGION 18410 ROTATION 2

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	6	18462	S18	E46	27	2700	3.0	23207	S15	E47	27	(D)	5	H	110	3	DSO
82	07	7	18462	S17	E34	26	3100	3.5	23206	S17	E30	31	(B)	4	H	80	7	DSO
82	07	7	18462	S17	E34	26	3100	3.5	23207	S15	E33	28	(BY)	5	H	80	7	DSO
82	07	8	18462	S17	E21	26	3100	3.5	23206	S19	E15	32	(AP)	3	H		1	AXX
82	07	8	18462	S17	E21	26	3100	3.5	23207	S17	E19	28	(B)	5	H	60	8	DRO
82	07	9	18462	S18	E10	24	3200	3.5	23207	S17	E06	28	(B)	4	H	30	3	DRO
82	07	10	18462	S18	W05	24	3100	3.5	23207	S18	W08	28	(B)	3	H	20	4	BXO
82	07	11	18462	S18	W18	23	2800	3.0	23207	S17	W22	29	(B)	3	H	10	2	BXO
82	07	12	18462	S17	W32	24	2800	3.0		S17	W32				H	10	3	BXO
82	07	13	18462	S17	W43	24	3100	2.5	23207	S16	W44	25	(AP)	3				
82	07	14	18462	S17	W58	26	2100	2.5										

BIG BEAR REGION 18464 CMP DATE 10.4

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	4	18464	N10	E78	20	200	3.0										
82	07	5	18464	N10	E63	24	100	1.0										

BIG BEAR REGION 18442 CMP DATE 11.0

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	5	18442	S06	E70	17	300	1.0										
82	07	6	18442	S04	E58	15	400	1.0										
82	07	7	18442	S03	E44	16	300	1.0										

BIG BEAR REGION 18469 CMP DATE 11.9 RETURN OF REGION 18414 ROTATION 2

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	6	18469	S14	E66	7	700	1.0										
82	07	7	18469	S17	E56	4	700	1.0										
82	07	8	18469	S17	E44	3	500	1.5										
82	07	9	18469	S18	E30	4	500	1.5										
82	07	10	18469	S18	E15	4	400	2.0										
82	07	11	18469	S18	E01	4	300	2.0										
82	07	12	18469	S17	W12	4	300	1.5										
82	07	13	18469	S16	W24	5	800	1.5										
82	07	14	18469	S17	W38	6	300	1.5	23227	S16	W33	1	X	1				

BIG BEAR REGION 18468 CMP DATE 12.8 RETURN OF REGION 18416 ROTATION 2

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	6	18468	N10	E86	347	900	2.5	23209	N13	E80	354	(AP)	3	H		1	AXX
82	07	7	18468	N11	E70	350	2000	3.5	23209	N14	E69	352	(B)	4	H	50	5	DSO
82	07	8	18468	N10	E57	350	2500	3.5	23213	N16	E50	357	(AP)	2	H	140	13	DAO
82	07	8	18468	N10	E57	350	2500	3.5	23209	N11	E56	351	(B)	5	H	140	13	DAO
82	07	9	18468	N09	E43	351	2700	3.0	23209	N10	E43	351	(B)	5	H	300	9	DSO
82	07	10	18468	N09	E29	350	2700	3.5	23213	N17	E27	353	(AP)	2				
82	07	10	18468	N09	E29	350	2700	3.5	23209	N10	E29	351	(B)	5	H	140	4	DSO
82	07	11	18468	N10	E14	351	2300	3.0	23209	N10	E13	354	(BP)	5	H	110	9	CSO
82	07	12	18468	N10	E01	351	2300	3.0	23209	N10	W01	355	(BP)	5	R	210	5	CKO
82	07	13	18468	N11	W12	353	2200	3.0	23209	N10	W15	356	(AP)	5	H	170	5	CSO
82	07	14	18468	N10	W25	353	2200	3.0	23209	N09	W28	356	(BP)	5	H	200	10	CSO
82	07	15	18468						23209	N09	W40	354	(B)	4	H	140	9	CSO
82	07	16	18468						23209	N09	W53	354	(BP)	5	H	70	5	CSO
82	07	17	18468						23209	N09	W67	355	(AP)	4	H	60	3	CSO

R E G I O N S O F S O L A R A C T I V I T Y

JULY 1982

BIG BEAR REGION 18468 (CONT) CMP DATE 12.8 RETURN OF REGION 18416 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	18	18468	N14	W90	2	1100	3.0		N10	W80				H		2	AXX

BIG BEAR REGION 18472 CMP DATE 13.8

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	8	18472	S25	E69	338	200	2.0	23214	S26	E70	337	(AF)	3				
82	07	9	18472	S26	E57	337	800	3.5	23214	S23	E55	339	(AP)	3	B	20	3	BXO
82	07	10	18472	S26	E42	337	1900	3.5	23214	S24	E42	338	(D)	4	H	120	10	DSI
82	07	11	18472	S25	E27	338	2700	3.5	23214	S23	E27	340	(D)	4	H	160	17	DSI
82	07	12	18472	S25	E15	337	2300	3.5	23214	S24	E14	340	(D)	4	H	500	24	DAI
82	07	13	18472	S24	E02	339	2400	4.0	23223	S16	E01	340	(AP)	3				
82	07	13	18472	S24	E02	339	2400	4.0	23214	S24	E03	338	(D)	5	B	350	17	DAI
82	07	14	18472	S25	W10	338	2400	3.5	23214	S24	W11	339	(BY)	5	H	270	15	DKO
82	07	15	18472						23214	S24	W23	337	(B)	5	H	320	13	CKO
82	07	16	18472						23214	S24	W35	336	(B)	5	H	80	11	ESO
82	07	17	18472						23214	S24	W47	335	(B)	4	H	90	10	DSI
82	07	18	18472	S24	W70	342	3200	3.5	23214	S24	W65	339	(B)	3	H	90	8	DSO
82	07	19	18472	S25	W80	342	1700	3.5										

BIG BEAR REGION 18474 CMP DATE 15.0 RETURN OF REGION 18422 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	8	18474	N10	E87	320	1600	3.5	23215	N13	E85	322	(AP)	3	H	650	5	EKO
82	07	9	18474	N10	E75	319	3300	3.5	23215	N14	E73	321	(BY)	5	H	1390	21	EKC
82	07	10	18474	N10	E60	319	10000	4.0	23215	N14	E60	320	(D)	5	H	1830	34	EKC
82	07	11	18474	N11	E48	317	10000	4.0	23215	N13	E45	322	(D)	5	H	2210	58	FKC
82	07	12	18474	N12	E32	320	10000	4.0	23215	N14	E33	321	(D)	5	H	3350	37	FKC
82	07	13	18474	N12	E19	322	9700	4.0	23215	N14	E20	321	(S)	5	H	2090	91	FKC
82	07	14	18474	N12	E05	323	10000	4.0	23215	N14	E06	322	(D)	5	H	2600	94	FKC
82	07	15	18474						23215	N14	W06	320	(D)	5	H	2370	2	FKC
82	07	16	18474						23215	N15	W20	321	(D)	5	H	1530	97	FKC
82	07	17	18474						23215	N15	W32	320	(D)	6	H	1260	56	FKC
82	07	18	18474	N17	W52	324	10000	4.5	23215	N15	W44	318	(BY)	5	H	1800	66	FKI
82	07	19	18474	N16	W63	325	10300	4.0	23215	N15	W56	318	(BY)	5	B	1260	41	FAI
82	07	20	18474	N16	W76	325	10000	3.5	23215	N15	W70	318	(B)	4	H	650	36	FKI
82	07	21	18474						23215	N15	W80	315	AF	3	H	90	9	EAI

BIG BEAR REGION 18473 CMP DATE 15.5 RETURN OF REGION 18421 ROTATIONS 5 AND 4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	8	18473	N18	E70	337	800	1.5										
82	07	9	18473	N20	E65	329	1700	2.0		N15	E72				R	1210	38	EKI
82	07	10	18473	N20	E60	319	4900	2.5										
82	07	11	18473	N20	E51	314	5000	2.5										
82	07	12	18473	N21	E38	314	4400	2.5										
82	07	13	18473	N24	E29	312	5400	2.5	23224	N20	E34	307	(AF)	3				
82	07	14	18473	N21	E12	316	4800	4.5	23224	N20	E21	307	(AF)	3	H	40	9	BXO
82	07	14	18473	N21	E12	316	4800	4.5	23228	N16	E27	301	(AF)	3	H	40	9	BXO
82	07	18	18473	N26	W39	311	8000	3.0		N28	W39				R	10	1	AXX
82	07	19	18473	N26	W48	310	7500	2.5										
82	07	20	18473	N26	W60	309	5800	2.5	23233	N21	W62	310	(B)	3	B	750	26	FKI
82	07	21	18473	N26	W70	306	4000	2.5	23233	N21	W76	311	B	2	H	90	9	EAI
82	07	22	18473	N27	W80	302	2200	2.0										

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18478 CMP DATE 15.9

			CALCIUM PLAGE DATA						SUNSPOT DATA										
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	9	18478	S10	E90	304	500	3.0	23216	S08	E80	314	(AP)	2	B	120	1	HSX
82	07	10	18478	S10	E71	308	1100	3.0	23216	S07	E68	312	(BP)	4	H	50	1	HSX
82	07	11	18478						23216	S07	E55	312	(BP)	5	H	120	5	CSO
82	07	12	18478						23216	S07	E43	311	(BP)	4	H	60	5	HSX
82	07	13	18478	S07	E29	312	1500	3.0	23216	S08	E29	312	(BY)	5	H	230	2	HSX
82	07	14	18478	S04	E16	312	1500	3.0	23216	S07	E16	312	(BP)	4	H	30	5	CSO
82	07	15	18478						23216	S07	E04	310	(AP)	4	H	30	3	CSO
82	07	16	18478						23216	S07	W11	312	(AF)	4	H	10	3	CSO
82	07	17	18478						23216	S07	W27	315	(AP)	4	H	20	2	HSX
82	07	18	18478	S04	W46	318	1100	2.5	23216	S07	W39	313	(AP)	3	H	20	5	BXO
82	07	19	18478	S05	W55	317	800	2.0	23216	S07	W52	314	(AP)	4	B	20	1	HSX
82	07	20	18478	S05	W68	317	500	1.0		S05	W68				H	10	1	AXX

BIG BEAR REGION 18481 CMP DATE 16.3

			CALCIUM PLAGE DATA						SUNSPOT DATA										
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	10	18481	S14	E85	294	1400	3.0	23218	S12	E79	301	(B)	3	H	150	2	EHO
82	07	11	18481	S13	E67	298	1800	3.5	23218	S12	E65	302	(B)	4	H	200	4	DHO
82	07	12	18481	S13	E53	299	1500	2.5	23218	S12	E51	303	(B)	5	H	170	8	ESO
82	07	13	18481	S12	E37	304	2600	3.0	23218	S11	E39	302	(B)	5	H	250	19	EAO
82	07	14	18481	S13	E23	305	1400	2.5	23218	S12	E25	303	(B)	5	H	250	16	ESO
82	07	15	18481						23218	S12	E13	301	(B)	5	H	340	17	ESO
82	07	16	18481						23218	S12	W01	302	(B)	5	H	180	23	FSO
82	07	17	18481						23218	S12	W14	302	(B)	6	H	180	23	ESI
82	07	18	18481	S10	W34	306	3500	3.5	23218	S12	W27	301	(B)	5	H	310	24	EAI
82	07	19	18481	S11	W43	305	3500	3.0	23218	S12	W39	301	(B)	5	B	400	18	FSI
82	07	20	18481	S11	W55	304	3200	3.5	23218	S11	W55	303	(B)	4	H	230	19	FAO
82	07	21	18481	S12	W68	304	2800	3.0	23218	S12	W67	302	(B)	4	H	160	10	FAO
82	07	22	18481	S12	W80	302	800	3.0	23218	S13	W75	297	(AF)	3	H	30	7	DSO

BIG BEAR REGION 18483 CMP DATE 17.0

			CALCIUM PLAGE DATA						SUNSPOT DATA										
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	11	18483	S08	E77	288	2400	3.0		S12	E67				R	280	9	DSO
82	07	12	18483	S08	E62	290	500	2.0		S11	E53				H	170	8	ESO
82	07	13	18483	S07	E46	295	1100	2.0		S11	E38				B	380	15	ESI
82	07	14	18483	S08	E30	298	600	2.5		S11	E25				H	250	16	ESO
82	07	18	18483	S04	W25	297	1000	2.5		S05	W33				L	10	3	AXX
82	07	19	18483	S05	W35	297	800	2.5		S10	W41				B	400	18	FSI
82	07	20	18483	S05	W48	297	600	2.0		S10	W54				H	230	19	FAO
82	07	21	18483	S07	W62	298	500	2.0		S12	W69				H	160	10	FAO
82	07	22	18483	S07	W78	300	500	2.5		S12	W78				H	30	7	DSO

BIG BEAR REGION 18484 CMP DATE 17.8 RETURN OF REGION 18430 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA										
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	11	18484	N11	E81	284	2500	3.5	23219	N12	E77	290	(AP)	2	R	10	1	AXX
82	07	12	18484	N12	E68	284	3500	3.0	23219	N12	E68	286	(B)	3	H	10	6	BXO
82	07	13	18484	N12	E58	283	3200	3.5	23225	N12	E62	279	(AF)	2	H	20	4	BXO
82	07	13	18484	N12	E58	283	3200	3.5	23219	N13	E54	287	(B)	4	H	20	4	BXO
82	07	14	18484	N12	E40	288	3800	3.5	23225	N12	E47	281	(AF)	3	H	10	3	BXO
82	07	14	18484	N12	E40	288	3800	3.5	23219	N13	E40	288	(B)	3	H	30	5	BXO
82	07	15	18484						23219	N13	E28	286	(AP)	3	H	40	6	CRI
82	07	15	18484						23225	N12	E35	279	(AF)	3	H	40	6	CRI
82	07	16	18484						23225	N12	E21	280	(AF)	5	H	60	11	DSI
82	07	17	18484						23225	N12	E09	279	(BY)	5	H	190	19	ESI
82	07	18	18484	N17	W14	286	5800	4.0	23225	N12	W03	277	(D)	5	H	700	41	EKI
82	07	19	18484	N16	W24	286	5700	4.0	23225	N12	W16	278	(D)	5	B	470	41	EAI
82	07	20	18484	N15	W37	286	5800	3.5	23225	N15	W34	282	(BY)	4	H	340	51	EKC
82	07	21	18484	N16	W49	285	6500	3.5	23225	N15	W46	281	(B)	4	H	150	17	DAI

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18484 (CONT) CMP DATE 17.8 RETURN OF REGION 18430 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA										
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	22	18484	N16	W63	285	5500	3.5	23225	N15	W63	285	(BY)	4	H	80	6	DSO
82	07	23	18484	N16	W78	286	3500	3.0	23225	N15	W76	285	B	2	H	20	3	CSO
82	07	24	18484	N16	W90	285	2500	3.0										

BIG BEAR REGION 18487 CMP DATE 18.2 RETURN OF REGION 18426 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	12	18487	S23	E74	278	300	1.5										
82	07	13	18487	S20	E63	278	900	1.5										
82	07	14	18487	S23	E46	282	800	3.0	23229	S20	E48	280	(B)	4	H	20	3	BXO
82	07	15	18487						23229	S20	E36	278	(B)	4	H	20	7	BXO
82	07	16	18487						23229	S20	E23	278	(B)	4	H	20	5	DSO
82	07	17	18487						23229	S20	E09	279	(B)	4	H	20	6	BXO
82	07	18	18487	S19	W09	281	2200	2.5	23229	S20	W05	279	(B)	3	H	20	7	CSO
82	07	19	18487	S20	W18	280	1700	2.5	23229	S20	W18	280	(B)	4	B	20	4	BXO
82	07	20	18487	S20	W31	280	1300	2.5		S18	W34				H		1	AXX
82	07	21	18487	S20	W44	280	900	2.5		S23	W37				H	30	1	HSX
82	07	22	18487	S20	W57	279	800	2.5		S23	W49				H	20	1	HSX
82	07	23	18487	S20	W71	279	600	1.0										

BIG BEAR REGION 18489 CMP DATE 18.7

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	12	18489	S05	E75	277	200	1.5	23222	S05	E76	278	(AF)	2	H	30	1	HSX
82	07	13	18489	S04	E66	275	600	1.0	23222	S04	E61	280	(AF)	4	H	800	1	HSX
82	07	14	18489	S05	E51	277	400	1.5	23222	S05	E43	285	(AF)	4	H	60	1	HSX
82	07	15	18489						23222	S05	E36	278	(AF)	4	H	70	1	HSX
82	07	16	18489						23222	S05	E23	278	(AF)	6	H	20	1	HSX
82	07	17	18489						23222	S05	E09	279	(AF)	6	H	40	1	HSX
82	07	18	18489	S03	W03	275	1000	1.5	23222	S05	W05	279	(AF)	5	H	40	1	HSX
82	07	19	18489	S03	W13	275	700	1.0	23222	S05	W18	280	(AF)	5	B	40	1	HSX
82	07	20	18489	S03	W26	275	600	1.0	23222	S05	W34	282	(AF)	4	H	50	1	HSX
82	07	21	18489	S04	W40	276	400	1.0	23222	S05	W47	282	(AF)	4	B	60	1	HSX
82	07	22	18489	S04	W53	275	400	1.0	23222	S05	W60	282	(AF)	4	H	20	1	HSX
82	07	23	18489	S04	W70	278	500	1.0	23222	S05	W72	281	(AF)	3	H		1	AXX

BIG BEAR REGION 18485 CMP DATE 18.9

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	11	18485	N20	E85	280	1000	3.0										
82	07	12	18485	N21	E70	282	3500	3.5	23221	N20	E75	279	(B)	3	B	60	5	BXO
82	07	13	18485	N23	E68	273	2400	3.5	23226	N15	E65	276	(AF)	3	M	20	4	BXO
82	07	13	18485	N23	E68	273	2400	3.5	23221	N21	E61	280	(BY)	4	H	390	23	DKI
82	07	14	18485	N21	E50	278	3200	3.5	23226	N16	E51	277	(AF)	3	H	10	3	BXO
82	07	14	18485	N21	E50	278	3200	3.5	23221	N21	E50	278	(BY)	5	H	640	27	EKI
82	07	15	18485						23221	N21	E38	276	(B)	4	H	400	41	FKI
82	07	16	18485						23221	N21	E22	279	(B)	5	H	150	41	FSI
82	07	17	18485						23221	N21	E10	278	(B)	5	H	190	33	FSI
82	07	18	18485	N25	W00	272	6200	3.5	23221	N21	W02	276	(B)	5	H	410	62	FSI
82	07	19	18485	N24	W13	275	6000	3.5	23221	N21	W15	277	(B)	5	B	180	27	EAI
82	07	20	18485	N24	W28	277	6000	3.5	23234	N24	W23	271	(AF)	3	H	40	20	FAO
82	07	21	18485	N24	W40	276	5500	3.0	23234	N23	W37	272	(AF)	4	H	20	5	CRO
82	07	22	18485	N25	W55	277	5000	3.0	23234	N23	W50	272	(AF)	3	H	40	4	FSO
82	07	23	18485	N25	W70	278	4000	2.5		N21	W64				H		1	AXX
82	07	24	18485	N25	W83	278	3300	3.0										

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18490 CMP DATE 19.0

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	14	18490	N07 E58	270	100	2.5									

BIG BEAR REGION 18491 CMP DATE 19.2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	14	18491	S23 E60	268	200	1.0									
82	07	16	18491					23231	S21 E38	263	(B)	4	H	20	7	BXO
82	07	17	18491					23231	S21 E22	266	(B)	4	H	30	8	DRO
82	07	18	18491	S22 E05	267	1400	3.0	23231	S21 E09	265	(B)	4	H	50	9	CSO
82	07	19	18491	S23 W05	267	900	3.0	23231	S21 W04	266	(B)	4	B	30	4	CSO
82	07	20	18491	S23 W17	266	1100	3.0	23231	S23 W22	270	(AP)	4	H	10	1	AXX
82	07	21	18491	S23 W30	266	1100	2.5	23231	S23 W36	271	(AP)	3	H	30	1	HSX
82	07	22	18491	S23 W44	266	1200	2.5	23231	S23 W49	271	(AP)	3	H	20	1	HSX
82	07	23	18491	S23 W58	266	800	2.5		S22 W54				M		1	AXX
82	07	24	18491	S23 W72	267	600	3.0									

BIG BEAR REGION 18456 CMP DATE 19.5

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	20	18456	N16 W15	264	500	2.0	23235	N18 W17	265	(AP)	3	H	10	2	AXX
82	07	21	18456	N15 W28	264	500	2.0	23235	N15 W28	263	(B)	3	H	20	3	CAO
82	07	22	18456	N15 W43	265	600	2.5	23235	N15 W45	267	(B)	3	H		2	BXO
82	07	23	18456	N16 W57	265	500	2.5	23235	N15 W57	266	(AP)	3	H		1	AXX
82	07	24	18456	N16 W70	265	600	2.0									
82	07	25	18456	N16 W83	264	300	1.5									

BIG BEAR REGION 18497 CMP DATE 20.7

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	24	18497	N23 W53	248	700	3.5		N18 W48				H	90	11	CAO
82	07	25	18497	N22 W65	246	1000	3.5		N21 W62				H	70	5	DSO

BIG BEAR REGION 18470 CMP DATE 20.8

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	18	18470	S14 E24	248	500	2.0									
82	07	19	18470	S13 E15	247	500	1.5									
82	07	20	18470	S13 E02	247	400	1.5									
82	07	21	18470	S13 W11	247	300	1.5									
82	07	22	18470	S13 W25	247	300	2.0									
82	07	23	18470	S13 W40	248	200	1.5									
82	07	24	18470	S13 W54	249	300	1.5									

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18493 CMP DATE 21.7 RETURN OF REGION 18431 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	15	18493						23230	N18	E72	242	(AP)	4	H	10	1	AXX
82	07	16	18493						23230	N18	E59	242	(AP)	4	H	40	1	HSX
82	07	17	18493						23230	N18	E47	241	(B)	5	H	30	4	CSO
82	07	18	18493	N18	E38	234	4000	3.5	23230	N18	E34	240	(B)	5	H	60	4	CSO
82	07	19	18493	N19	E27	235	3700	3.0	23230	N18	E22	240	(B)	5	B	40	3	CSO
82	07	20	18493	N20	E15	234	3700	3.5	23230	N18	E07	241	(AP)	4	H	90	1	HSX
82	07	21	18493	N20	E02	234	3500	3.0	23230	N18	W07	242	(AP)	4	H	40	1	HSX
82	07	22	18493	N20	W11	233	2700	2.5	23230	N18	W20	242	(AP)	4	H	10	3	CSO
82	07	23	18493	N20	W27	235	2400	2.5	23230	N17	W33	242	(AP)	4	H	10	4	CSO
82	07	24	18493	N20	W40	235	2500	2.5	23230	N19	W48	244	(B)	4	H	90	11	CAO
82	07	25	18493	N19	W53	234	2100	2.5	23230	N20	W62	245	(BP)	4	H	70	5	DSO
82	07	26	18493						23230	N21	W64	234	(B)	3	L		1	AXX
82	07	27	18493	N19	W79	235	800	1.0										

BIG BEAR REGION 18488 CMP DATE 23.9

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	28	18488	N07	W63	206	100	2.5										

BIG BEAR REGION 18500 CMP DATE 24.4

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	18	18500	N07	E77	195	700	2.5										
82	07	19	18500	N11	E68	194	500	2.5	23232	N12	E68	194	AF	2	B	20	1	AXX
82	07	20	18500	N12	E54	195	700	3.0	23232	N11	E49	199	(AF)	4	H	10	2	BXO
82	07	21	18500	N11	E40	196	500	3.0	23232	N11	E36	199	(AF)	3	H		1	AXX
82	07	22	18500	N12	E25	197	400	2.5										
82	07	23	18500	N13	E09	199	300	2.0										
82	07	24	18500	N12	W04	199	200	1.5										
82	07	25	18500	N12	W17	198	200	1.0										

BIG BEAR REGION 18459 CMP DATE 24.8 RETURN OF REGION 18444 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	19	18459	S25	E70	192	500	1.0										
82	07	20	18459	S26	E55	194	500	1.0										

BIG BEAR REGION 18475B CMP DATE 24.9

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	BB NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	22	18475B	S05	E32	190	300	1.5										
82	07	23	18475B	S05	E17	191	300	2.0	23237	S06	E16	193	(B)	2	H		2	BXO
82	07	24	18475B	S05	E02	193	300	2.0		S05	E06				R	10	2	BXO
82	07	25	18475B	S06	W12	193	200	2.0	23238	S03	W28	211	(AF)	2	B		1	AXX

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18471 CMP DATE 26.5

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	21	18471	S19 E67	169	200	2.5	23236	S18 E61	174	(AP)	3	H		1	AXX
82	07	22	18471	S19 E53	169	300	3.0	23236	S18 E49	173	(AF)	3	H	10	3	BXO
82	07	23	18471	S16 E38	170	600	2.0	23236	S17 E35	174	(AF)	2	H		1	AXX
82	07	24	18471	S19 E25	170	1200	3.5	23236	S20 E26	170	(B)	4	H	50	8	CSO
82	07	25	18471	S19 E11	170	1000	2.5	23236	S20 E13	170	(B)	3	H	30	7	CSO
82	07	26	18471					23236	S19 W01	171	(AP)	3	H	30	6	BXO
82	07	27	18471	S18 W15	171	700	1.0									
82	07	28	18471	S18 W29	172	700	1.5									
82	07	29	18471	S16 W43	173	700	1.5									
82	07	30	18471	S16 W55	171	600	1.5									
82	07	31	18471	S16 W70	172	700	2.0									

BIG BEAR REGION 18496 CMP DATE 27.7

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	30	18496	S15 W38	154	100	2.5	23246	S16 W36	153	(AF)	3				
82	07	31	18496	S15 W53	155	100	2.0									

BIG BEAR REGION 18494 CMP DATE 28.6

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	26	18494					23239	S15 E17	153	(B)	3	H	10	2	BXO
82	07	27	18494	S13 E13	143	200	1.0	23240	S13 E13	143	(AP)	3	H	10	1	AXX
82	07	28	18494	S13 W00	143	100	1.0									
82	07	29	18494	S12 W13	143	300	2.5									
82	07	30	18494	S12 W26	142	100	1.0									
82	07	31	18494	S13 W41	143	200	1.5									

BIG BEAR REGION 18476 CMP DATE 30.1 NEW, IN AREA OF REGION 18451

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	23	18476	N14 E85	123	500	1.0									
82	07	24	18476	N13 E75	120	2000	3.0									
82	07	25	18476	N13 E58	123	1500	3.0									
82	07	27	18476	N14 E33	123	1100	2.5									
82	07	28	18476	N14 E19	124	800	2.5									
82	07	29	18476	N14 E06	124	700	2.5									
82	07	30	18476	N14 W07	123	700	2.5									
82	07	31	18476	N15 W22	124	700	2.5									
82	08	1	18476	N15 W35	125	500	2.0									
82	08	2	18476	N15 W49	126	400	2.0									
82	08	3	18476	N15 W63	127	300	1.5									

BIG BEAR REGION 18477 CMP DATE 30.6

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	24	18477	S02 E78	117	100	3.0									

REGIONS OF SOLAR ACTIVITY

JULY 1982

BIG BEAR REGION 18507 CMP DATE 31.1 RETURN OF REGION 18453 ROTATION 2

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	BB NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	07	25	18507	N05 E74	107	300	2.5									
82	07	27	18507	N06 E46	110	900	3.0	23241	N05 E46	110	(B)	4	H	60	7	DRO
82	07	28	18507	N05 E33	110	900	2.5	23241	N06 E33	110	(B)	5	P	60	8	DSO
82	07	29	18507	N06 E18	112	1000	2.5	23241	N06 E18	111	(F)	4	H	40	7	DSO
82	07	30	18507	N06 E06	110	600	2.5	23241	N06 E05	112	(B)	4	H	40	2	CSO
82	07	31	18507	N06 W09	111	700	2.5	23241	N06 W07	110	(B)	4	B	30	2	CSO
82	08	1	18507	N06 W23	113	600	2.5	23241	N06 W23	114	(B)	4	H	20	3	BXO
82	08	2	18507	N06 W36	113	600	2.0	23241	N06 W36	113	(B)	3	H	20	3	BXO
82	08	3	18507	N06 W50	114	500	2.0									
82	08	4	18507	N06 W64	114	300	2.0									
82	08	5	18507	N07 W79	116	300	1.5									

NOTES:

No solar magnetograms were made at Kitt Peak National Observatory on July 6, 25, 29-31, 1982.
On these dates Calcium spectroheliograms from Mt. Wilson Observatory were used: July 15-17, and 26, 1982.
No Mt. Wilson sunspot data were available for July 3, 1982.

CONTIGUOUS PLAGES FOR JULY 1982: 18450/18448
18448/18452
18458/18451
18485/18484
18483/18481

DAILY CALCIUM PLAGE INDEX

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
82	7	1	26.3	82	7	11	62.6	82	7	21	47.9
82	7	2	27.4	82	7	12	74.2	82	7	22	29.3
82	7	3	31.1	82	7	13	90.0	82	7	23	13.8
82	7	4	31.7	82	7	14	102.8	82	7	24	13.7
82	7	5	25.2	82	7	15	*	82	7	25	9.9
82	7	6	23.6	82	7	16	*	82	7	26	*
82	7	7	23.9	82	7	17	*	82	7	27	8.3
82	7	8	24.7	82	7	18	123.4	82	7	28	9.7
82	7	9	28.3	82	7	19	94.9	82	7	29	10.3
82	7	10	53.7	82	7	20	73.3	82	7	30	13.8
								82	7	31	21.1

* No Observations

SUDDEN IONOSPHERIC DISTURBANCES

July 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	SWF	SEA	SPA	LF-SPA	SES	Known Flare	Hale Region
						Number of Station Reports by Type						
01	0926	0949	1020	1	1		1				NF	
01	1629	1639	1752	1	1		1				NF	
03	0649	0706U	0745	1	3		2				NF	
03	0745	0752	1028	2	5	2		1	2	1	0738	18462
03	1245	1251	1400	1	5	2	1	1	1	6	NF	
03	1741	1748	1900	1-	5	1		1		10	1738	18461
04	0442	0500	0736	3	5	3	1	1	1	4	0440	18462
06	1203	1215	1318	1	3		2				1208E	18454
07	0409	0435	0657	1	1			1			0420E	18462
07	1159	1203	1248	1-	3		1	1			*	
07	1350	1351	1410	1-	3					2	*	
07	1903	1908	1930	1-	3			1		2	NF	
07	2007	2020	2200	1-	5	1		2		11	*	
07	2307	2319	0002	2	3			1		7	NF	
08	0002	0008	0054	1-	3			1	1		NF	
08	0118	0130	0202D	1-	3			1	1		0118	18462
08	0202E	0231	0352	2	3			1	1		NF	
08	0223	0229	0340	1-	3	1			1	1	0224	18474
08	0352	0424	0457D	3+	3			1		2	*	
08	0411	0424	0458	1+	3	2			1		0416	18468
08	0457E	0515	0639	3+	5	4	2	1	2	3	NF	
08	0639	0658	0910D	3+	5	4		1	2	2	0650	18474
08	0910E	0921	0951D	1+	5	2		1	1	1	*	
08	0954	1003	1107	1	5	3		2	1	2	*	
08	1154	1158	1205	1-	3	1	1	1	1	1	*	
08	1210	1216	1230	1	3	1	1	1	1	1	*	
08	1408	1419	1419D	1-	3			1		1	1408	18474
08	1426	1429	1441	1	5	4	2	1	1	9	NF	
08	1526	1527	1550	1-	3		1	1			1523	18474
08	1650	1655	1815	1-	3		1	1		1	1657	18474
08	2027	2045	2230	1-	5	1		2		9	2041E	18473
08	2318	2345	0017D	1	1			1			2315E	18474
09	0019	0032	0142	1-	3			1	1	2	0018	18474
09	0324	0345	0409	1-	3			1	1		0311	18474
09	0409	0445	0544	1-	3		1	1		1	0415	18474
09	0546	0608	0650	2+	5	2	2	1	2	1	0548	18474
09	0713	0743	0827D	3+	5	4	3	1	2	3	NF	
09	0731	0741	0940	2	5	3	1		2	5	0730	18473
09	0827E	0854	1124	3+	5	2	3	1	2	2	*	
09	0902	0918	0945	2	3					3	*	
09	1124	1133	1313	1+	3		1	2	1	1	1130E	18474
09	1322	1330	1345	1-	3	1		1	1	1	1334E	18474
09	1408	1412	1420	1-	3		1	1	1	1	NF	
09	1512	1522	1556	1-	3		2	1		3	1518	18474
09	1617	1625	1700	1+	5	3	3	1	1	10	1616	18478
09	1658	1712	1810	1-	3	1		1		8	1658	18474
09	1840	1846	1935	1-	3		1	1	1	4	1836	18474
09	2005	2036	2107D	1-	3	1		1		2	2018E	18474
09	2107E	2112	2207D	2+	5	1		2		7	NF	
09	2208	2215	2238	1	5	1		1		9	2211	18472
09	2241E	2257	2340D	2	5	2		1		8	2238	18472
10	0134	0150	0317	2+	5	2		1	1	4	0140	18475
10	0317	0320	0407D	2	3	1		1	1	2	0316	18473
10	0407	0412	0436	2+	3	1		1	1	2	0402	18473
10	0541	0606	0708D	1+	3			1	2		NF	
10	0708	0726	0800	2+	3	1	2	1	1	2	0655	18472
10	0820	0842	1003D	3+	5	3	4	1	2	3	0826	18473
10	1007	1019	1052D	3+	3	3	3	2	2	2	1004	18473
10	1126	1132	1141	1-	5	3	1	1	1	2	*	
10	1152	1206	1217	1-	3	1	2	1	1		*	

SUDDEN IONOSPHERIC DISTURBANCES

July 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	SWF	SEA	SPA	LF-SPA	SES	Known Flare	Hale Region
						Number of Station Reports by Type						
10	1231	1246	1415	1-	3	1	1	1	1	1	*	
10	1435	1438	1505	1-	1			1		1	NF	
10	1527	1532	1545	1-	3	1		1	1	7	1525	18474
10	1612	1619	1645	1+	5	5	3	1	1	8	1606	18472
10	1650	1656	1712	1-	5	1		1		6	NF	
10	1949	2021	2136	2+	3	2		2		9	1950	18474
10	2012	2023	2051	1-	3			1		10	2011	18472
10	2048	2053	2110	1-	3					3	2045	18472
10	2136	2152	2216D	2+	3	2		2		10	NF	
10	2240	2250	2319	1-	1			1			2242	18468
10	2319	2325	0030	2+	5	1		1		10	2320	18474
11	0030	0036	0050	1-	1			1			0031	18478
11	0128	0200	0133	1-	3			1	1	1	0129	18472
11	0206	0224	0234D	2	3	1		1	1	3	0206	18473
11	0236E	0241	0328	2	3	1		1	1	3	0234	18473
11	0420	0426	0526	1	3			1	1	1	0418	18473
11	0445E	0448	0526D	1	3	1		1	1		0446E	18474
11	0527	0540	0618	2+	3	2	2	1	1		*	
11	0617E	0623	0637D	1	3			1		1	0617E	18473
11	0640	0645	0655	1	3	1		1	2	1	0640	18473
11	0737	0746	0812	1	3			1	1	1	0739	18474
11	0812	0820	0938	2+	5	3	4	1	2	1	0807	18474
11	0938	0947	1041	2+	5	1	3	2		1	0938	18473
11	0955	1000	1020	1	3	1	1	1	1	2	*	
11	1041	1047	1131	1	5	3	3	2	1	3	*	
11	1131	1136	1230	1-	3	2	2	2	1	2	1133E	18473
11	1247	1257	1320	1	3	2	3	2	1	4	1239	18472
11	1340	1404	1455	1-	3	3	1	2	1	4	1337	18473
11	1401	1406	1430	1+	5	3	4	1	1	11	NF	
11	1520	1525	1600	1-	3	2	1	1	1	4	1520	18474
11	1647	1714	1800	1-	3			1		3	1643	18474
11	1703	1713	1730	1	3	3	1	1	1	4	1706	18474
11	1851	1901	1934	1-	3	2		1		9	NF	
11	1934	1939	2134	1	3	2		2		8	1933	18474
11	2149	2216	2306D	1	3			1		3	*	
11	2306E	2331	0049D	2+	5	2		1	1	7	2309	18474
12	0049E	0105	0201	2+	3	3		1	1	3	0053E	18474
12	0310	0323	0445	2+	3	1		1	1	1	0310	18473
12	0450	0512	0540D	2+	3		2	1	2		0456	18474
12	0540E	0628	0748D	3+	3	1	1	1	2		0539	18474
12	0608	0628	0734	1-	3	2	2		3		0608	18474
12	0621	0621E	0820	1	1	1					0623	18472
12	0748	0752	0800	1	3	1	1	1	2		0747	18472
12	0858	0950	1330	3+	3	3	2	1	2		0908	18474
12	1015	1021	1040	1-	3		1	1	1		1018E	18474
12	1630	1638	1650	1-	5	1	2	1	1	6	1630	18474
12	1906	1910	2005	1-	3			2		7	1907	18473
12	2029	2050	2257	1	3	1		1		4	2025	18468
13	0024	0037	0158	1-	3			1	1		0025	18472
13	0216	0244	0358	1-	3			1	1		0216	18472
13	0544E	0602	0622D	1-	3		1	1			0532	18472
13	0622E	0640	0720D	2	3			1	1		0620	18472
13	0637	0645	0710	1-	3	1			1		0637	18474
13	0720E	0734	0823	1	3			1	1		0725E	18472
13	0824	0830	0910	1	3			1	1		0823	18472
13	0944	0952	1109	2+	5	3	3	2	2	3	0955E	18474
13	1115	1122	1205	1-	3	3	1	1	2	2	1118E	18472
13	1228	1232	1245	1-	3	1	2	1	1		*	
13	1401	1416	1500	2+	5	3	3	1	1	8	1400	18474
13	1624	1638	1655	1-	3	2	1	1	1	4	1625	18472
13	1740	1747	1830	1-	3			1		1	1730E	18484
13	1849	1850	1855	1-	3	3		1			1846	18474
13	2034	2042	2140	1-	3			1		5	NF	
13	2144	2159	2324	1	3			1		2	2149E	18472

S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

July 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	Hale Region
14	0003	0016	0056	1-	3	1		1	1		0003	18472
14	0120	0142	0300	1	3			1	1		0120	18484
14	0300	0309	0332	1-	3		1	1			NF	
14	0340	0400	0440	1-	1			1			0340	18474
14	0520	0530	0620	1-	1			1			0515E	18483
14	0631	0647	0814	2	3	1	3	1	2		0632	18485
14	0938	1000	1010D	1-	3	1		2	1		NF	
14	1010E	1037	1148	2+	3	2	3	1	1	2	1010	18474
14	1034	1045	1150	1-	3	2	2	1	2	2	1030	18485
14	1232	1242	1259	1	3	2	1	1	1	2	1232	18474
14	1317	1332	1410	1	5	2	1	1	1	8	1317	18474
14	1430	1510	1640	1-	3	1		1		2	1428	18472
14	1452	1515	1600	1	3	2		1	1	8	NF	
14	1730	1750	1815	1	3	2	1	2	1	8	1730	18485
14	1836	1850	2000	1-	3			2		8	1837	18474
14	2009	2012	2026D	1-	3			1		3	NF	
14	2045	2050	2110	1-	3					5	2045	18474
14	2124	2137	2240	1-	3			1		3	2123	18487
14	2208	2232	2315	1-	3			1		2	2212	18474
15	0045	0100	0121D	1-	3			1	1		0055	18484
15	0123	0136	0215	1-	3			1	1		0120	18485
15	0221	0325	0630D	3	3	1		1		2	0220	18474
15	0324	0332	0430	1-	3	1		1			0323	18485
15	0917	0942	1056	2+	5	3	3	2	2	3	*	
15	0939	0946	1005	1-	3			1	2		0950E	No Data
15	1056	1108	1150	1-	3		2	2	1		*	
15	1228	1240	1300	1	3	2	2	2	1	2	1237E	No Data
15	1444	1452	1510	1-	3			1	1	1	1442	No Data
15	1528	1532	1600	1-	3			1		2	1526	No Data
15	1617	1635	1725	1-	3			1	1	4	1625E	No Data
15	1735	1750	1800	1-	3		2	1		1	1737	No Data
15	1839	1855	1947	1-	3			2		1	*	
15	2206	2217	2338	1	3	1		1		9	NF	
16	0021	0033	0250	2+	3	2		1	1	1	0020E	No Data
16	0322	0332	0440	1	3	1		1	1		0322	No Data
16	0426	0434	0459	1	3		2				0425	No Data
16	0550	0618	0650	1	3		2				0547	No Data
16	0801	0812	0858	1-	3			1	2		0802	No Data
16	0858	0908	0957D	2	3	2	2	1	1	2	0900	No Data
16	0959	1010	1120	1-	3	1	3	2	1	1	*	
16	1216	1238	1238D	1-	1			1			1216	No Data
16	1245	1254	1345	1	5	1	1	2	1	6	1249E	No Data
16	1400	1411U	1456	1	3		1	1			1352	No Data
16	1434	1446	1446D	1-	1			1			1426	No Data
16	1457	1507	1521	1	3	1	2	1	1	11	1458	No Data
16	1521	1526	1535	1-	3		2	1	1	8	1520	No Data
16	1618	1635	1730	1-	3		1	1	1	8	1617	No Data
16	1835	1900	2015	1	3			1		8	1829	No Data
16	1852	1906	1930	1+	1					1	1852	No Data
16	2134	2146	2202	1-	1			1			2132	No Data
16	2352	0012	0117	2	3	2		1	1	2	2351	No Data
17	0204	0212	0444	3+	3	2		1	1	5	0203	No Data
17	0535	0541	0558	1-	3			1	1		0536	No Data
17	0603	0714	0920	1	3			1	1		0602	No Data
17	0622	0630	0644	1	3		2				0620	No Data
17	1029	1038	1150	3+	5	2	4	2	2	3	*	
17	1224	1235	1235D	1-	1			1			1218	No Data
17	1258	1310	1400	2	3		1	2	1	4	1255E	No Data
17	1347	1356	1500	1-	1			1			1345	No Data
17	1520	1530	1615	1-	1			1			1513	No Data
17	1716	1723	1745	1-	3			1		6	1714	No Data
17	1755	1809	1809D	1-	1			1			1754	No Data
17	1828	1837	1915	1-	3			1		6	1826	No Data
17	2311	2322	0010	2	3	3		1	1	8	2310	No Data

S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

July 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	SWF	SEA	SPA	LF-SPA	SES	Known Flare	Hale Region
18	0044	0057	0147	1-	3			1	1		0043	18484
18	0147	0206	0308	1-	3			1	1		0143	18468
18	0322	0327	0352	1-	1			1			0322	18474
18	0610	0637	0725	1-	3			1	1		0619E	18474
18	0740	0800	0904	1-	3		1	1	1	1	0740	18487
18	0904	0923	1021	1-	3		2	1		1	*	
18	0918	0922	0940	1-	1			1			0916	18474
18	1141	1153	1300	1	3		2	1	1	2	1135E	18474
18	1519	1523	1600	1-	1			1		1	1517	18474
18	1621	1643	1800	1-	1			1		1	1620	18484
18	1653	1703	1739	1	1		1				1657	18474
18	2052	2102	2146	1-	1			1			2052	18468
18	2200	2226	2312	1-	1			1			2203	18485
18	2332	2344	0002	1-	1			1			2332	18474
19	0041	0056	0141D	1	3	2			1	1	0042	18473
19	0057	0101	0130	1-	3				1	1	0100E	18473
19	0139E	0139D	0202	3	3				1	1	*	
19	0250	0302	0315	1-	1	1					0242	18485
19	0353	0357	0443	1	3	1			1	1	0353	18474
19	0412E	0432	0544D	2+	5	2	4	1	2	1	0407E	18474
19	0542E	0551	0738	3+	5	5	4	1	1	1	0542	18484
19	0842	0849	0907	1	3	1	3		2		*	
19	0903	0908	0940	1-	3	1	1		2	2	0911E	18485
19	1252	1258	1400	1	5	1	3	1	1	5	1251E	18474
19	1808	1823	1845	1	3	1				6	1807	18474
19	1842	1856	1940	1-	3			1		5	1844	18474
19	1937	1952	2015	1-	3			1		4	1935E	18493
19	2017	2026	2045	1-	3			1		7	*	
19	2202	2250	0002U	1	3			1	1	3	NF	
19	2216	2242	0038	1	3	2		1		1	2220	18474
19	2300	2321	2350	1+	1	1					2304	18484
20	0038	0043	0155	2	3	1		1	1	4	0038	18484
20	0203	0217	0234D	1-	3	1		1	1	2	0202	18493
20	0237	0248	0315	1	3	1		1	1	3	0236E	18474
20	0411	0422	0602	3+	3	1	1	1	1	3	0425E	18473
20	0608	0616	0630	1-	3			1	2		0605	18474
20	0742	0803	0940	1	3	1	1	1	2		0753	18474
20	0946	1012	1130	3+	5	3	3	1	2	3	*	
20	1141	1218	1313	1	3	2		1	1		1159E	18474
20	1252	1256	1330	1-	3	1	3		1	1	1252	18484
20	2150	2212	2308D	1	3	1		1		9	NF	18474
20	2308E	2317	0102	1	3	2		1		3	2308E	
21	0108	0118	0214	1-	3			1	1		NF	
21	0215	0218	0240	1-	3			1	1		*	
21	0533E	0551	0710	1	3			1	2		0532E	18471
21	0827	0907	0956	1-	1			1			0824	18474
21	1002	1015	1238	1	3	2		1	2	1	*	
21	1642	1702	1740	2	3	5	1		1	6	1644	18474
21	1815	1826	1915	2	3	1				9	1815	18473
22	0027	0039	0115	1-	3			1	1		*	
22	0512	0516	0710	1	3	2	1	1	2		0511	18473
22	0735	0743	0830	1-	3	1	2	1	2	2	0735	18456
22	1411	1445	1530	2+	3	1				7	NF	
22	1645	1710	1800	2+	5	5			1	7	1648	18473
22	1956	2003	2044	1-	3			1	2		NF	
22	2354	0006	0038	1-	3			1	1		NF	
23	0038	0050	0110	1-	3			1	1		0039	18484
23	0613	0616	0700	1-	3			1	1		0613	18485
23	0840	0857	1016	1-	3			1	2		*	
23	1018	1024	1100	1-	3	1	1	1			*	
24	1318	1322	1350	1-	3			1		6	1321	18471

SUDDEN IONOSPHERIC DISTURBANCES

July 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	SWF	SEA	SPA	LF-SPA	SES	Known Flare	Hale Region
24	1744	1804	1900	1+	3					8	1743	18471
24	1817	1837	2000	2	3					4	1807	18484
24	2115	2130	2245	1+	3	1				3	*	
25	1201	1214	1250	1+	3		1	1	1		NF	
25	1413	1438	1515	2	3					3	NF	
25	1809	1820	1905	1-	3	1		1		8	NF	
27	1600	1609	1640	2	3	1				4	NF	
28	1834	1845	1915	1+	3	1				4	NF	
29	0718	0727	0818	1	1		1				0723E	18484
31	0632	0637	0718	1-	1			1			NF	
31	1127	0136	1200	1	1		1				*	

* = No Flare Patrol
NF = No Flare Reported

REPORTING OBSERVATORIES FOR JULY 1982[†]

Darmstadt, GFR (DA)	SWF	Maui, Hawaii, USA (MI)	SWF
Durham, North Carolina, USA (A54)	SES	Mayfield Village, Ohio, USA (A28)	SES
Edenvale, South Africa (A52)	SES	Missoula, Montana, USA (A31)	SES, SWF
Frenchtown, Montana, USA (A56)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF, SFA
Hiraiso, Japan (HI)	SWF	Portage, Michigan, USA (A51)	SES
Hobart, Tasmania, Australia (TA)	SEA	Somerton, United Kingdom (SO)	SWF
Houston, Texas, USA (A50)	SES	Sao Paulo, Brasil (UM)	SES, SPA
Huancayo, Peru (HU)	SWF	Simi Valley, California, USA (A57)	SES
Inubo, Japan (IN)	SPA	Sofia, Bulgaria (SF)	SES
Johannesburg, South Africa (BA)	SES	Tavares, Florida, USA (A49)	SES
Juliusruh, GDR (JU)	SWF	Tucson, Arizona, USA (A9)	SES
Kuhlungsborn, GDR (KU)	SPA, SEA	Upice, Czechoslovakia (UI)	SEA
Latrobe, Pennsylvania, USA (A19)	SES	Vsetin, Czechoslovakia (VS)	SEA
Lintong, China (LT)	SPA	Walla Walla, Washington, USA (A55)	SES
Louisville, Kentucky, USA (A26)	SES		

[†]Observations are not necessarily continuous for each reporting station.

SIDs BY BIG BEAR CALCIUM PLAGE REGION
July 1982

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Region																															
18454						1																									
18456																						1									
18461			1																												
18462			1	1			1	1																							
18468								1		1		1						2													
18471																					1			2							
18472									2	4	2	2	9	2																	
18473								1	1	4	8	2							2	1	1	2									
18474								6	10	3	8	7	4	7	1			7	6	5	2										
18475										1																					
18478									1		1																				
18483														1																	
18484													1	1	1			2	2	2			1	1					1		
18485														3	2			1	2				1								
18487														1				1													
18493																			1	1											
NO FLARE	2		2				2	4	3	4	2		1	4	1				1	1	1	3			3		1	1			1
NO FLARE PATROL							3	5	2	3	4		1		3	1	1	1	3	1	2	1	2	1							1
NO DATA															6	17	12														
EVENT TOTALS	2		4	1		1	6	18	19	20	25	12	16	19	14	18	13	14	17	11	7	7	4	4	3		1	1	1		2

PIONEER XII (VENUS ORBITER)
Interplanetary Magnetic Field Magnitudes

MAGNETIC FIELD MAGNITUDES

JULY 1982

DAY	TIME	BMAG (GAMMAS)
1	13:31:00	17.62
2	13:31:10	8.77
3	13:30:50	20.52
4	13:30:40	17.57
5	13:30:20	8.26
6	13:30:40	12.77
7	13:30:40	14.58
8	13:30:50	16.03
9	13:30:40	12.33
10	13:30:40	10.10
11	13:50:30	5.23
12	13:30:40	19.80
13	13:35:20	13.47
14	13:30:40	17.26
15	16:40:00	16.73
16	13:30:20	11.57
17	13:30:20	14.13
18	13:30:20	15.60
19	13:30:30	12.09
20	13:30:20	13.32
21	13:30:20	21.47
22	13:30:30	35.89
23	13:31:00	13.92
24	13:30:30	21.04
25	13:30:40	17.30
26	13:34:30	16.46
27	13:30:30	6.28
28	13:30:20	18.68
29	16:39:40	16.18
30	13:30:50	17.85
31	13:31:00	23.33

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
01	0000	0735	CULG				0008.0	0009.5	1				IIIG,U
	0523	1843	WEIS				1026.6	1027.7	1				IIIG
			WEIS				1253.8	1256.3	1				IIIGG
	1208	2240	HARV	1605.0		1	1605.0	1607.0	3				IIIG
			WEIS				1605.3	1607.8	2				IIIG
			HARV				1606.0	1611.0	3				II
			HARV				1617.0	1625.0	3				II
			WEIS				1617.4	1625.0	2				IIIGG
			HARV							1618.0	1624.0	1	IIIGW
	2036	2122	CULG										
	2125	2400	CULG										
02	0000	0736	CULG				0152.0		1	0152.0		1	IIIG
			CULG				0234.0	0235.0	1				IIIB,V
			CULG				0331.5	0334.0	1				IIIN
	0409	0545	WEIS										
	0553	1841	WEIS										
	1208	2305	HARV				1627.0		1				IIIB
	2036	2127	CULG										
	2212	2400	CULG				2328.5	2329.0	1				UNCLF
03	0549	1428	WEIS										
	0000	0736	CULG				0625.5	0606.0	1				UNCLF
	1509	1842	WEIS				1745.6	1745.8	1				IIIB
			CULG	2128.5	2129.0								CONT,W
	2036	2400	CULG				2128.5	2129.0	1				IIIG
			PALE				2128.5	2129.2	1				III
	1208	2335	HARV	2129.0		1							IIIGW
			HARV				2321.0	2322.0	1				IIIG
			CULG				2321.5		1				IIIB
			CULG				2324.0		1				IIIB
04	0000	0736	CULG				0220.5	0637.0	1				IIIN
			LEAR				0332.1	0332.3	1				III
			CULG	0444.5	0458.0	1							IS,C
			CULG				0448.5	0518.5	2				II H
	0410	1642	WEIS				0449.6	0505.5	2				II
			LEAR				0450.5	0504.5	1				II
			CULG				0453.0	0459.0	1				IV
			WEIS				0453.0	0456.5	2				DCIM
			WEIS				0504.7	0505.3	1				IIIG
			CULG				0539.5	0540.0	2				IIIB
			WEIS				0539.6	0541.0	1				IIIG,U
			CULG				0624.5	0625.5	2				IIIG
			WEIS				0625.4	0626.4	2				IIIG
			CULG				0632.5	0635.0	1				IIIG
			WEIS				0633.7	0636.3	1				IIIG
	1208	2355	HARV				1447.0	1450.0	2				IIIG
			HARV				1627.0		1	1627.0		1	IIIBW
			HARV				1632.0	1633.0	2	1632.0	1633.0	1	IIIG
			HARV				1701.0		3				IIIG,U
			HARV				1747.0	1750.0	2	1747.0	1750.0	1	IIIG
			PALE				1933.8	1933.9	1				III
			HARV				1934.0		1				IIIGW
			HARV				1948.0	1949.0	1				I
	2123	2400	CULG				2202.0		1				IIIB
			HARV				2205.0	2206.0	1				IIIG
			CULG	2205.5		1	2205.5		2				IIIB
			CULG				2318.5		1				IIIB,U
05	0000	0656	CULG	0209.0		1	0209.0		1				IIIB
			LEAR				0235.8	0237.2	1				III
			CULG				0237.5	0238.0	2				IIIB,V
			LEAR				0248.5	0252.2	1				III
			PALE				0248.6	0252.2	2				G
			CULG				0249.5	0253.0	2				IIIN
			LEAR				0643.4	0643.8	1				III
	0514	1209	WEIS				0643.4	0643.9	3				IIIG
			CULG	0644.5		1	0644.5	0645.0	3				IIIB,V
			WEIS				0932.2	0932.3	1				IIIG
			WEIS				1137.1	1138.2	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
05	1231	2229	HARV				1348.0	1350.0	2				IIIG
			HARV				1354.0	1357.0	2				IIIG
			HARV				1403.0	1404.0	2				IIIG
			HARV	1459.0		1	1458.0	1502.0	3				IIIGG
			SGMR				1512.9	1514.3	1				V
			HARV				1513.0	1514.0	3	1513.0	1514.0	2	IIIGG
			HARV				1531.0	1532.0	2				IIIG
			HARV				1705.0		1				IIIG
			HARV				1933.0	1940.0	1	1933.0	1940.0	1	IIIGW
			PALE				1939.9	1940.0	1				III
			HARV				2045.0	2046.0	3				IIIG,U
			PALE				2045.8	2046.0	2				III
			HARV				2052.0	2054.0	2				IIIG
			HARV				2123.0		2				IIIG,U
	2037	2400	CULG	2124.0		2	2124.0		1				IIIG
			HARV				2141.0	2142.0	2				IIIG
			PALE				2141.8	2142.2	1				V
			CULG				2142.5	2143.5	2				IIIG,V
			HARV				2146.0		1				I
			CULG				2148.5		1				IIIB
06	0000	0736	CULG										
	1128	1842	WEIS				1132.9	1133.1	2				IIIB
			WEIS				1618.0	1618.2	1				IIIB
			WEIS				1622.0	1622.2	1				IIIB
	1232	2245	HARV	1645.0	1646.0	1							IIIGGW
	2037	2400	CULG				2315.0	2316.0	1				IIIG
07	0000	0736	CULG				0023.5	0234.5	1	0023.5	0133.5	1	IIIN
			CULG	0059.0	0059.5	1							IIIG
			LEAR				0206.0	0206.2	1				III
			LEAR				0233.5	0233.6	1				III
			CULG	0302.5		1							I
	0411	0924	WEIS				0504.8	0505.0	2				IIIB
			WEIS				0820.5	0820.8	3				IIIB
	0934	1843	WEIS				1117.8	1123.3	2				IIIG/V
			SGMR				1118.4	1120.1	1				V
	1231	2305	HARV				2007.0	2009.0	1	2009.0	2009.0	1	IW
			PALE				2021.0	2021.4	1				III
	2037	2400	CULG				2135.0	2344.0	1				IIIN
			CULG				2312.5	2317.0	2				IIIGG
			CULG				2321.5	2332.5	2				IIIN
			PALE				2327.3	2332.5	2				G
08	0000	0737	CULG				0013.5	0601.0	1	0111.5	0508.0	1	II N
			LEAR				0123.9	0138.0	1				G
			CULG				0124.5	0125.0	2				IIIG
			PALE				0124.8	0125.2	2				III
			CULG				0136.0	0136.5	2	0136.0	0136.5	2	IIIG,V
			PALE				0136.1	0138.2	2				G
			LEAR				0225.6	0225.8	1				III
			CULG				0307.0	0308.0	2	0307.0	0307.6	1	IIIG
			PALE				0307.1	0307.5	2				III
			CULG				0326.0		2	0326.0		2	IIIB
			CULG				0338.5	0511.5	2				IIIN
			CULG				0504.0	0505.0	2				IIIG,V
			LEAR				0504.4	0511.9	1				V
			CULG				0506.5		3	0506.5		1	IIIB
			CULG				0508.5	0511.0	3	0508.5	0510.0	2	IIIG,V
			CULG	0509.0	0512.5	1							IIIG,N
			CULG							0511.0	0520.0		SWF,W
			CULG				0511.0	0516.0					IS,W,DC
			LEAR				0519.8	0541.0	1				CONT
	0513	0913	WEIS				0519.8	0525.3	2				IIIG
			CULG	0544.0		2							I
			CULG	0547.5	0706.5	1							IN
			LEAR				0724.5	0735.5	1				G
			WEIS				0725.3	0729.3	3				IIIG
			WEIS				0731.3	0737.2	3				IIIGG
			WEIS				0842.7	0843.3	3				IIIG
			WEIS				0909.2	0909.6	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
08			WEIS				0911.2	0911.9	2				IIIG
			SGMR				1055.9	1111.5	1				GG
	1133	1215	WEIS				1133.7	1134.8	2				IIIG
			WEIS				1146.9	1147.7	1				IIIG
			WEIS				1152.4	1153.9	3				IIIG,U
			WEIS				1155.3	1159.3	3				IIIGG,U
			SGMR				1155.9	1211.5	1				GG
			WEIS				1204.1	1212.0	3				IIIGG
			WEIS				1209.6	1211.6	3				DCIM
			WEIS				1324.7	1325.2	2				IIIG
			WEIS				1328.3	1329.3	2				IIIG
			SGMR				1329.8	1331.0	1				V
	1320	1638	WEIS				1408.4	1408.8	2				IIIB
	1232	2245	HARV				1427.0	1428.0	3	1427.0	1428.0	2	IIIG,V
			SGMR				1427.2	1428.5	1				V
			HARV				1434.0	1435.0	2				IIIG
			WEIS				1440.7	1441.2	2				IIIG
			HARV				1441.0	2046.0	2	1629.0	2046.0	2	IIIN
			WEIS				1447.4	1453.1	2				IIIGG,U
			HARV				1451.0		3	1451.0		1	IIIG
			SGMR				1451.1	1451.2	1				III
			HARV				1524.0	1525.0	3				IIIG
			WEIS				1524.3	1525.3	2				IIIG
			SGMR				1524.8	1525.1	1				III
			HARV				1537.0	1538.0	2				IIIG
			WEIS				1537.6	1538.1	2				IIIG
			WEIS				1629.2	1629.3	2				IIIG
			HARV				1717.0		2	1717.0		1	IIIG
			WEIS				1734.8	1735.0	1				IIIB
			WEIS				1736.2	1736.3	2				IIIB
			PALE				1738.7	1739.1	1				III
			WEIS				1738.7	1739.2	2				IIIG
			HARV				1739.0		3	1739.0		2	IIIG
			HARV				1813.0	1814.0	2	1814.0		1	IIIG
			HARV				2014.0	2017.0	1	2014.0	2017.0	1	IIIG
			PALE				2015.2	2028.0	1				GG
			HARV				2027.0	2039.0	3	2027.0	2039.0	2	IIIGG
			PALE				2028.8	2037.8	2				G
			HARV				2101.0	2108.0	3	2101.0	2108.0	2	IIIGG
			SGMR				2104.8	2105.0	1				III
	2037	2400	CULG				2105.5	2400.0					IIIS,W
			CULG	2109.5	2329.5	1							IN
			HARV	2111.0		1	2111.0	2112.0	1				DCIM
			HARV				2116.0	2120.0	2				IV
			CULG				2116.5	2359.5	1				IIIN
			HARV				2117.0	2122.0	3	2120.0	2122.0	2	IIIG
			CULG				2121.0	2121.5	2				IIIG
			SGMR				2121.4	2121.6	1				III
			HARV				2122.0	2129.0	2				UNCL
			CULG				2126.0	2130.0	1				II
			SGMR				2152.1	2152.3	1				III
			CULG				2153.0	2153.5	3				IIIB,V
			HARV				2153.0		3	2153.0		2	IIIG
			HARV	2243.0		1							IIIB
			CULG				2306.5		2				IIIB
			PALE				2324.6	2325.3	2				III
			CULG				2325.0		2				IIIG,V
			PALE				2355.8	2356.3	2				III
09	0000	0737	CULG				0001.5	0019.0					IIIS,W
			CULG				0003.5	0016.5	1				IIIG,N
			PALE				0003.5	0018.5	2				GG
			LEAR				0015.9	0021.2	1				II
			CULG				0016.5		2				IIIB
			CULG	0142.0	0145.0	1							IN
			CULG				0259.0	0323.0	1				IIIS
			PALE				0302.2	0324.1	1				GG
			CULG				0401.5	0432.5					IIIS,W
			CULG				0406.0	0602.5	1				IIIN
	0409	1843	WEIS				0411.0	1838.0	2				IIIN
			CULG				0424.0	0433.5	1				IIIS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
09			PALE				0424.0	0427.8	2				G
	0456	1656	WEIS				0456.9	0457.3	3				IIIB,U
			CULG				0653.0	0702.0	1				IIIG,N
			WEIS				0653.3	0653.6	2				U
			WEIS				0656.6	0656.8	1				U
			WEIS				0716.3	0718.8	3				IIIG
			LEAR				0718.5	0718.7	1				III
			LEAR				0731.5	0731.7	1				III
			WEIS				0734.5	0743.5	3				IIIGG/V
			CULG							0735.0	0737.0	1	IIIN
			WEIS				0736.0	0746.0	1				IV
			LEAR				0741.7	0820.7	1				IV
			WEIS				0743.5	0817.0	3				II HARM
			LEAR				0743.8	0809.7	1				II
			WEIS				0828.0	1656.0	1				IN
			WEIS				0902.0	1013.0	3				IV
			WEIS				1046.2	1053.3	3				IIIGG,RS
			SGMR				1046.3	1047.9	3				V
			WEIS				1233.1	1233.7	2				IIIG
			SGMR				1233.4	1233.5	1				III
	1231	2240	HARV				1235.0	1527.0	1				IN
			HARV	1242.0	1908.0	2							IIIN
			WEIS				1303.0	1306.6	2				IIIG
			SGMR				1305.8	1306.5	1				III
			HARV	1306.0		3							IIIG
			HARV	1313.0	1314.0	3							IIIG
			HARV	1324.0	1325.0	3							IIIG
			WEIS				1343.1	1344.9	3				IIIG
			SGMR				1343.8	1344.3	1				III
			HARV				1344.0	1345.0	3	1344.0	1345.0	2	IIIG
			WEIS				1350.2	1350.7	2				IIIG
			SGMR				1401.0	1418.6	1				GG
			HARV				1412.0	2144.0	2	1545.0	2144.0	2	IIIN
			WEIS				1412.5	1419.7	2				IIIGG
			SGMR				1507.7	1511.4	1				III
			HARV				1527.0	1535.0	2				DC
			HARV				1527.0	1535.0	3	1528.0	1535.0	2	IIIGG
			WEIS				1527.5	1535.2	3				IIIGG
			SGMR				1529.1	1531.9	1				V
			WEIS				1543.7	1545.6	2				IIIG
			SGMR				1544.4	1545.3	1				V
			HARV	1701.0		2							IIIG
			HARV	1708.0	1710.0	2							IIIG
			SGMR				1710.7	1712.1	1				V
			SGMR				1718.4	1718.6	1				III
			PALE				1718.5	1806.6	2				GG
			HARV	1748.0	1749.0	2							IIIG
			SGMR				1806.4	1806.6	1				III
			HARV				1829.0	1833.0	2	1829.0	1833.0	1	IIIG
			PALE				1829.6	1926.3	2				GG
			HARV	1835.0	1838.0	3							IIIG
			SGMR				1846.8	1848.3	1				III
			HARV				1847.0	1850.0	2	1847.0	1850.0	2	IIIG
			HARV	1933.0		2							IIIG
			HARV	1946.0	1948.0	2							IIIGG,RS
			PALE				1947.7	2047.7	2				GG
			HARV	2001.0	2009.0	2	2002.0	2012.0	2	2002.0	2012.0	2	IIIGG
			SGMR				2011.0	2032.3	2				G
			HARV	2014.0	2031.0	2	2014.0	2032.0	3	2014.0	2032.0	2	IIIGG,V
			HARV				2046.0	2049.0	2	2046.0	2049.0	2	IIIG
			SGMR				2052.7	2102.8	1				G
			HARV	2053.0	2058.0	2	2052.0	2100.0	3	2052.0	2100.0	2	IIIGG
			HARV				2102.0	2003.0	3	2102.0	2103.0	2	IIIG
			HARV	2106.0	2114.0	2	2106.0	2112.0	3	2106.0	2112.0	2	IIIGG,V
			SGMR				2106.3	2109.2	3				V
	2037	2400	CULG	2106.5	2109.0	1							CONT
			CULG	2107.0	2253.0	3	2106.5	2254.0	3				IIIGG,N
			HARV	2107.0	2112.0	2							IV
			CULG	2108.0	2356.5	2	2108.0	2356.5	2				IIIG,N
			SGMR				2109.2	2111.0	1				III
			CULG				2110.0	2115.0	2				II

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
09			HARV				2110.0	2115.0	2				UNCL
			HARV				2116.0	2122.0	3	2116.0	2122.0	2	IIIGG
			SGMR				2116.7	2119.4	1				V
			HARV	2123.0	2136.0	2	2124.0	2140.0	3	2124.0	2140.0	2	IIIGG
			SGMR				2126.4	2139.0	1				G
			SGMR				2148.8	2149.1	1				V
			CULG	2149.0	2237.0	2							IN
			HARV	2149.0		2	2149.0	2150.0	3	2149.0	2150.0	2	IIIG,V
			HARV				2202.0	2204.0	3	2202.0	2203.0	2	IIIG
			SGMR				2202.0	2352.0	1				GG
			CULG	2237.0	2340.0	1							IS
			CULG				2307.0	2358.0	2				IIIN
10			LEAR				0016.4	0030.6	1				G
			CULG	0018.0	0629.0	1							DCIM,N
			CULG	0048.5	0709.5	2							IN
			LEAR				0108.5	0112.3	1				III
			LEAR				0116.9	0123.1	1				III
			CULG				0120.5	0559.0	2				IIIGG,N
			LEAR				0132.8	0146.5	1				G
			CULG	0138.0	0601.5	3	0133.0	0602.0	3	0141.5	0410.0	2	IIIG,N
			CULG							0146.0	0155.0	1	SWF
			CULG	0200.5	0626.5	2	0016.5	0705.5	2	0016.5	0207.5	2	IIIN
			LEAR				0316.5	0324.2	2				V
			PALE				0316.7	0320.5	3				V
	0409	0753	WEIS				0410.0	1810.0	3				IIIS
	0814	1842	WEIS				0458.1	0502.0	3				IIIG
			WEIS				0535.9	0536.7	3				IIIG
			WEIS				0556.7	0602.2	3				IIIGG
			WEIS				0627.9	0630.2	2				IIIG
			WEIS				0637.7	0637.8	3				IIIG
			WEIS				0705.3	0707.4	3				IIIG
			WEIS				0712.0	0724.2	3				IIIGG
			WEIS				0752.3	0753.6	3				IIIGG
			WEIS				0827.7	0839.6	3				IIIGG/V
			WEIS				0954.6	0959.2	3				IIIGG
			SGMR				1148.0	1201.9	2				GG
			WEIS				1153.0	1155.1	2				IIIG
			WEIS				1158.3	1201.9	3				IIIG
			WEIS				1231.6	1233.8	3				IIIG
			SGMR				1231.7	1233.9	2				V
	1232	2310	HARV				1232.0	1233.0	2	1232.0	1233.0	1	IIIG
			HARV				1235.0	2308.0	2	1639.0	2308.0	2	IIIN
			HARV				1239.0	1430.0	1				IN
			SGMR				1239.5	1243.3	1				III
			SGMR				1308.8	1309.8	1				V
			HARV				1309.0		2	1309.0		1	IIIG
			HARV				1314.0	1315.0	3				IIIG
			HARV				1317.0	1318.0	3	1318.0		1	IIIG
			SGMR				1317.2	1324.2	1				III
			HARV	1323.0		1	1323.0	1324.0	3	1323.0		1	IIIG
			HARV	1333.0	2247.0	1							IN
			HARV				1413.0	1414.0	3	1413.0	1414.0	2	IIIG,V
			SGMR				1413.3	1428.9	2				GG
			WEIS				1413.3	1418.3	3				IIIG
			HARV				1416.0		3	1416.0		2	IIIG
			HARV				1424.0	1425.0	3	1424.0	1425.0	2	IIIGG,V
			WEIS				1424.0	1427.3	3				IIIG
			HARV				1430.0	1840.0	1				I
			HARV				1439.0	1440.0	3	1440.0		1	IIIG
			WEIS				1439.1	1441.3	3				IIIG
			SGMR				1439.6	1439.8	1				III
			HARV				1539.0	1541.0	2	1539.0		1	IIIG
			SGMR				1539.0	1539.4	1				III
			WEIS				1539.0	1541.5	3				IIIG
			WEIS				1543.3	1644.3	3				IIIG
			HARV				1604.0	1606.0	3	1605.0	1606.0	2	IIIGG,V
			SGMR				1605.0	1606.2	1				V
			WEIS				1605.6	1607.6	3				IIIG
			SGMR				1619.7	1620.1	1				III
			HARV				1620.0		2	1620.0		2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
10			HARV				1628.0	1629.0	2	1629.0		1	IIIG
			SGMR				1630.9	1632.9	3				V
			HARV				1631.0	1633.0	3	1631.0	1633.0	2	IIIGG,V
			PALE				1631.4	1644.0	2				GG
			WEIS				1631.9	1634.3	3				IIIG/V
			SGMR				1641.8	1644.1	1				V
			HARV	1643.0	1644.0	2	1642.0	1644.0	3	1642.0	1644.0	2	IIIG
			HARV				1709.0	1710.0	3	1709.0	1710.0	2	IIIG
			SGMR				1709.6	1710.0	1				V
			WEIS				1709.7	1710.1	3				IIIG
			PALE				1750.7	1810.3	2				GG
			HARV				1809.0	1810.0	2	1809.0	1810.0	2	IIIGG
			SGMR				1809.0	1809.5	1				V
			HARV				1840.0	2309.0	1				IN
			HARV				1901.0	1902.0	3	1901.0	1902.0	2	IIIG
			PALE				1901.2	1958.4	2				GG
			HARV				1913.0	1914.0	2	1913.0	1914.0	2	IIIG
			SGMR				1913.5	1913.6	1				III
			SGMR				1924.2	1924.4	1				III
			HARV	1948.0	1952.0	2	1948.0	1952.0	3	1948.0	1952.0	2	IIIGG,V
			PALE				1948.5	1954.9	3				V
			SGMR				1949.0	1952.7	2				V
			HARV				1954.0	1955.0	2	1954.0	1955.0	2	IIIG
			SGMR				1954.2	1954.4	1				III
			HARV				2016.0		2				IIIG
			PALE				2021.9	2108.6	2				GG
			HARV	2022.0	2038.0	3	2022.0	2039.0	3	2022.0	2039.0	2	IIIGG
			SGMR				2025.5	2035.2	1				G
	0000	0712	CULG	2030.5	0637.5	1	0007.5	0709.0	1	0015.5	0440.5	1	IIIN
	2040	2400	CULG				2107.0	2327.0	1	2251.5	2351.5	1	IIIN
			HARV				2107.0	2108.0	3	2107.0	2108.0	2	IIIG
			CULG				2107.5	2317.5	2				IIIG,N
			CULG	2107.5	2354.0	2							IN
			SGMR				2119.8	2126.8	2				V
			PALE				2130.5	2147.7	2				GG
			HARV	2139.0	2142.0	1	2139.0	2142.0	3	2139.0	2140.0	2	IIIGG
			SGMR				2139.2	2140.0	1				V
			CULG	2140.0	2141.5	2	2139.0	2142.5	3				IIIG
			CULG				2146.0	2242.0	3				IIIN
			HARV				2147.0	2148.0	2				IIIG
			HARV	2241.0		2	2239.0	2241.0	3	2241.0		2	IIIG
			SGMR				2241.2	2241.4	1				III
			HARV	2259.0	2300.0	2	2259.0	2300.0	2				IIIG
			CULG	2319.0	2321.0	3	2319.0	2326.0	3	2320.0	2324.0	1	IIIGG,V
			PALE				2319.2	2326.2	3				V
			CULG	2319.5	2322.0	2							CONT
			LEAR				2321.4	2323.5	1				III
			CULG							2322.0	2326.0		SWF,W
			SGMR				2325.1	2326.1	2				V
11			PALE				0000.5	0003.7	2				V
			CULG				0002.5	0710.0	1	0000.5	0450.6	1	IIIN
			WEIS				0092.7	0932.5	2				IIIG
			CULG	0125.5	0539.0	1							IN
			PALE				0125.8	0127.0	2				V
			PALE				0131.5	0132.6	3				V
			PALE				0206.2	0214.0	3				G
			CULG							0210.0	0225.0		SWF,W
			PALE				0234.0	0236.7	2				G
			PALE				0302.1	0302.3	2				III
			PALE				0316.6	0411.0	2				GG
	0410	1316	WEIS				0410.0	1832.0	3				IIIN
	0000	0737	CULG	0419.0	0641.5	2	0000.0	0709.0	2	0126.0	0422.5	2	IIIG,N
			CULG	0419.5	0637.5	3	0125.5	0638.5	3				IIIG,N
			PALE				0419.6	0424.6	2				G
			CULG	0530.5	0533.0	2							IS
	1320	1841	WEIS				0540.7	0541.3	3				IIIG
			LEAR				0611.8	0625.1	1				G
			WEIS				0615.1	0617.2	2				IIIG
			WEIS				0618.6	0619.6	3				IIIG
			LEAR				0636.8	0639.3	2				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
11			WEIS				0636.8	0639.3	3				IIIG
			LEAR				0639.3	0936.0	1				CONT
			WEIS				0705.7	0710.9	3				IIIGG
			WEIS				0730.1	0743.9	3				IIIGG,U
			LEAR				0731.3	0740.2	1				III
			LEAR				0740.8	0742.4	2				III
			WEIS				0806.4	0818.1	3				IIIGG
			LEAR				0810.9	0813.1	1				III
			WEIS				0827.2	0829.2	3				IIIG,U
			LEAR				0827.4	0828.8	1				III
			LEAR				0846.7	0849.6	1				III
			WEIS				0846.7	0849.8	3				IIIG
			WEIS				0914.3	0914.5	3				IIIG
			WEIS				1039.0	1045.7	3				IIIG
			SGMR				1041.8	1042.8	1				V
			WEIS				1050.3	1052.8	3				IIIG
			WEIS				1107.7	1112.9	3				IIIG
			SGMR				1110.3	1111.5	2				V
			WEIS				1127.8	1133.0	3				IIIG
			SGMR				1129.9	1131.0	1				III
			WEIS				1150.7	1150.9	3				IIIB
			WEIS				1202.9	1205.8	3				IIIG
			WEIS				1210.7	1221.7	2				IIIGG
			SGMR				1219.7	1221.0	1				V
			WEIS				1238.7	1244.2	3				IIIG
	1232	2335	HARV				1239.0	1243.0	2	1243.0		1	IIIGG
			WEIS				1246.6	1250.0	3				IIIG
			HARV				1249.0	1250.0	2				IIIG
			WEIS				1310.2	1314.6	3				IIIGG
			HARV				1313.0	1315.0	3	1313.0	1314.0	2	IIIG,U
			SGMR				1313.1	1315.2	2				V
			HARV				1317.0	2335.0	2	1624.0	2256.0	2	IIIN
			HARV	1354.0	1355.0	1	1354.0	1355.0	3				IIIG,V
			WEIS				1354.6	1356.2	3				IIIG
			SGMR				1355.9	1415.0	3				GG
			WEIS				1358.7	1406.8	3				IIIGG
			HARV	1359.0	1401.0	1	1359.0	1401.0	3	1359.0	1400.0	2	IIIGG,V
			HARV	1402.0	1404.0	1	1402.0	1407.0	3	1402.0	1407.0	2	IIIGG,V
			HARV				1409.0	1413.0	2				UNCL
			HARV	1417.0		2							IIIG
			HARV				1449.0	1458.0	3	1449.0	1458.0	2	IIIGG
			SGMR				1449.2	1458.1	1				III
			WEIS				1449.2	1450.3	3				IIIG
			WEIS				1451.3	1451.8	3				IIIG
			WEIS				1452.5	1455.0	3				IIIGG
			WEIS				1457.7	1458.6	3				IIIG
			WEIS				1531.7	1532.3	2				IIIG
			HARV				1532.0		2	1532.0		2	IIIG
			SGMR				1532.0	1536.0	1				V
			HARV				1534.0	1535.0	3	1534.0	1535.0	2	IIIG,V
			WEIS				1534.3	1535.9	2				IIIG
			WEIS				1601.0	1608.3	3				IIIG
			HARV	1606.0	1608.0	1	1600.0	1609.0	3	1602.0	1607.0	2	IIIGG
			WEIS				1610.4	1613.7	3				IIIG
			HARV	1613.0		1	1611.0	1613.0	3	1611.0	1613.0	2	IIIG
			HARV				1619.0	1620.0	2	1619.0	1620.0	2	IIIG
			HARV				1628.0	1632.0	3	1628.0	1632.0	2	IIIGG
			WEIS				1634.2	1649.7	3				IIIGG
			PALE				1641.0	1643.1	2				V
			HARV	1643.0	1645.0	1	1634.0	1645.0	3	1634.0	1645.0	2	IIIGG
			HARV	1647.0	1649.0	2	1647.0	1650.0	3	1647.0	1650.0	2	IIIGG
			HARV				1653.0	1657.0	3	1653.0	1656.0	2	IIIGG,V
			PALE				1653.5	1656.0	2				G
			WEIS				1653.6	1656.8	3				IIIG
			SGMR				1653.7	1655.8	2				V
			HARV				1659.0	1703.0	2				IIIGG
			WEIS				1688.7	1620.0	2				IIIG
			HARV				1717.0		3				IIIG
			WEIS				1717.0	1717.3	3				U
			HARV	1739.0	2115.0	1							IN
			HARV				1807.0	1808.0	2	1808.0		2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
11			HARV				1814.0	1827.0	3	1815.0	1827.0	2	IIIGG
			WEIS				1814.7	1815.9	3				IIIG
			PALE				1814.8	1815.8	2				V
			SGMR				1814.8	1815.6	2				V
			HARV				1909.0	1915.0	2	1909.0	1915.0	2	IIIGG
			PALE				1909.5	1911.1	2				G
			PALE				1915.2	1915.4	2				III
			HARV	1933.0	1938.0	1	1933.0	1940.0	3	1933.0	1938.0	2	IIIGG,V
			PALE				1933.0	1939.8	3				V
			SGMR				1933.0	1939.0	2				V
			HARV				1942.0	1946.0	3				II
			HARV				1952.0		2	1952.0		2	IIIG
			HARV				1957.0	1959.0	2	1957.0	1959.0	2	IIIG
			PALE				1957.3	1959.1	1				G
			HARV				2019.0		3	2019.0		2	IIIG
			PALE				2019.3	2019.4	2				III
			SGMR				2019.3	2019.4	1				III
			HARV				2042.0	2043.0	2	2042.0		2	IIIG
	2038	2400	CULG	2102.5	2210.0								IS,W
			CULG				2115.0	2400.0	1				CONT
			CULG	2116.0	2256.0	1	2116.0	2359.5	1				IIIN
			CULG	2116.0	2330.5	1							IN
			HARV				2116.0		2				IIIG
			CULG				2134.0	2318.5	2				IIIG,N
			HARV				2139.0	2142.0	2	2140.0		2	IIIG
			PALE				2140.0	2140.1	2				III
			PALE				2146.0	2153.6	2				G
			CULG				2147.0	2310.0	3				IIIGG,N
			HARV	2147.0	2153.0	3				2147.0	2153.0	2	IIIGG
			SGMR				2147.0	2150.8	1				III
			HARV				2159.0	2200.0	2				IIIGG
			PALE				2159.0	2243.9	2				GG
			HARV				2200.0	2201.0	2				DC
			HARV				2208.0	2209.0	2	2208.0	2209.0	2	IIIG
			HARV				2211.0	2214.0	3	2211.0	2214.0	2	IIIGG
			HARV				2217.0	2219.0	2	2217.0	2218.0	1	IIIG
			HARV	2231.0	2232.0	1	2231.0	2232.0	3	2231.0	2232.0	2	IIIGG
			HARV				2244.0		2	2244.0		2	IIIG
			PALE				2255.9	2256.1	2				III
			CULG							2309.0	2343.0		SWF,W
			HARV				2309.0	2310.0	3	2309.0	2310.0	2	IIIG
			PALE				2309.3	2309.8	2				III
			CULG				2339.5	2344.5	1				II
12	0000	0737	CULG				0000.0	0715.0	1				CONT
			CULG				0015.5	0715.0	1				IS
			CULG	0015.5	0659.0	1							IN
			CULG				0016.5	0649.0	2				IIIG,N
			LEAR				0016.8	0937.0	1				CONT
			PALE				0016.8	0017.2	1				III
			PALE				0026.3	0026.5	2				III
			PALE				0039.5	0039.9	2				III
			CULG				0042.0	0649.5	3	0042.0	0402.5	2	IIIG,N
			PALE				0042.1	0043.6	2				V
			LEAR				0042.2	0043.1	1				V
			PALE				0054.3	0054.4	2				III
			PALE				0055.0	0055.8	3				V
			PALE				0058.8	0105.2	3				V
			CULG	0059.0	0102.0	1							CONT
			CULG	0059.0	0105.5	3	0059.0	0105.5	3	0059.0	0105.5	3	IIIGG,V
			LEAR				0059.3	0105.3	2				V
			CULG				0107.0	0113.5	1				II
			LEAR				0110.6	0113.3	1				II
			PALE				0110.8	0114.8	2				II
			PALE				0118.4	0118.6	2				III
			CULG	0118.5	0318.5	1	0026.0	0627.0	3	0026.0	0404.0	2	IIIN
			PALE				0133.3	0133.7	2				III
			PALE				0234.3	0234.6	2				III
			PALE				0250.3	0307.6	2				G
			PALE				0310.2	0320.0	3				G
			CULG	0310.5	0318.5	3							IIIG,N

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
12			PALE				0329.4	0329.6	2				III
			PALE				0340.8	0341.1	2				III
			PALE				0401.8	0402.1	2				III
			WEIS				0433.0	1754.0	2				IIIS
	0411	1834	WEIS				0484.0	1834.0	2				IS
			LEAR				0626.5	0627.1	1				III
			WEIS				0808.5	0810.3	2				DCIM
			WEIS				0813.9	0821.4	3				IIIG,DCIM
			WEIS				0915.0	1825.0	3				IV
			WEIS				0934.3	1003.0	2				DCIM
			WEIS				0946.2	0949.0	1				II
			WEIS	0954.0	1006.0	1							IV
			WEIS	1104.0	1141.0	2							IV
			SGMR				1113.0	2357.0	1				CONT
			WEIS				1209.1	1210.6	2				DCIM
			WEIS	1214.1	1214.7	2							DCIM
	1232	2310	HARV	1236.0		1							IIIB
			HARV				1340.0	1720.0	2				IC
			HARV				1531.0	1532.0	3	1531.0	1532.0	2	IIIG,V
			SGMR				1531.1	1531.5	3				V
			HARV				1610.0	2125.0	2	1610.0	2202.0	2	IIIN
			WEIS				1617.0	1816.0	1				DP,RS
			PALE				1655.0	0445.0	1				CONT
			HARV				1720.0	2040.0	3				I
			SGMR				1906.5	1919.0	3				V
			PALE				1907.8	1909.8	3				V
			HARV	1908.0	1909.0	1	1908.0	1909.0	3	1908.0	1909.0	2	IIIGG,V
			PALE				2000.3	2000.7	2				III
			HARV				2010.0	2013.0	3	2010.0	2013.0	2	IIIGG
			PALE				2011.2	2013.2	2				V
			HARV	2014.0	2017.0	2							DCIM
			HARV				2030.0	2046.0	2	2030.0	2046.0	2	IIIGG
			PALE				2030.0	2125.5	2				GG
			HARV				2040.0	2310.0	1				IN
			HARV	2051.0	2054.0	2	2051.0	2054.0	2	2051.0	2054.0	2	IIIGG
	2038	2400	CULG				2102.5	2400.0	2				IS,C
			CULG				2108.0	2300.0	1				IIIS
			CULG	2108.0	2355.0	2							IN,C
			CULG				2118.0	2320.5	1				RSDP,N
			CULG				2125.5	2321.5	2				IIIN
			CULG				2229.0	2230.0	3				IIIB,V
			HARV				2229.0	2230.0	2	2229.0	2230.0	2	IIIG
			PALE				2229.2	2229.8	2				V
			CULG				2300.0	2357.5	1				IIIN
13			CULG				0000.0	0715.0	1				IS,C
	0000	0737	CULG				0000.0	0650.5	2	0000.0	0235.0	2	IIIG,N
			PALE				0000.1	0003.0	2				G
			LEAR				0000.3	0002.1	1				III
			LEAR				0008.0	0936.0	1				CONT
			CULG				0102.0	0140.0	1				SCINT
			PALE				0217.1	0218.8	2				G
			CULG				0225.0	0655.0	1				RSDP,N
			CULG	0229.0	0229.5	1							DCIM
			CULG				0230.0	0700.0	1				IIIS
			PALE				0234.5	0234.9	2				III
			PALE				0300.2	0307.2	2				G
	0425	0508	WEIS				0522.0	1802.0	2				IIIS
	1515	1833	WEIS				0524.0	1611.0	1				IS
			CULG	0620.0	0715.0	1							CONT
			CULG	0717.0	0620.0								IS,W,C
			WEIS				0914.8	0917.1	3				IIIGG
			LEAR				0915.0	0919.2	1				III
			WEIS				0918.9	0919.4	2				IIIG
			WEIS				1003.5	1010.0	1				II
			WEIS				1105.2	1105.8	3				IIIG
			SGMR				1200.2	1200.3	1				III
			SGMR				1230.0	1805.0	1				CONT
	1232	2245	HARV				1235.0	2245.0	1				IN
			HARV				1243.0	1244.0	2				IIIG
			HARV				1312.0	2013.0	2	1558.0	2013.0	2	IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Int (1-3)	Spectral Type
13			HARV	1345.0	1346.0	1	1346.0						IIIGW
			HARV	1404.0	2230.0	1							INW
			WEIS				1725.7	1728.8	3				IIIG
			HARV				1727.0	1729.0	3	1728.0	1729.0	2	IIIG
			SGMR				1728.2	1728.8	2				V
			PALE				1728.3	1728.8	2				III
	2038	2400	CULG	2102.0	2400.0	1							CONT
			CULG				2108.0	2400.0	1				IS,C
			CULG				2114.5	2241.0					IIIS,W
			CULG				2123.5	2219.0	1				IIIG,N
			HARV				2124.0	2126.0	2	2124.0	2126.0	1	IIIGG
			HARV				2135.0	2136.0	2				IIIG
			LEAR				2351.8	0938.0	1				CONT
14			CULG				0000.0	0552.5	1				IS,C
	0000	0737	CULG	0000.0	0716.0	1							IN,C
			CULG				0125.0	0528.5	1	0125.0	0401.0	1	IIIN
			CULG				0139.5	0140.0	2	0140.0		1	IIIB
			PALE				0139.8	0140.2	2				III
			CULG				0328.0	0530.0					IIIS,W
			CULG				0331.5	0336.0	1				IIIS
			CULG				0334.0	0526.5	2				IIIN
			PALE				0349.0	0349.7	2				III
	0426	1922	WEIS				0513.0	1831.0					P,CONT
			CULG				0532.5	0712.0	2				IS,C
			SGMR				0943.0	2356.0	1				CONT
	1231	2245	HARV				1308.0	2245.0	3				IC
			HARV	1442.0	2227.0	1							INW
			HARV	1616.0		1	1616.0	1617.0	2				IIIGG,U
			PALE				1636.0	0434.0	2				CONT
			HARV				1657.0	2218.0	2	1657.0	2218.0	2	IIIN
			HARV				1750.0	1758.0	2	1750.0	1758.0	2	IIIGG
			SGMR				1805.3	1807.2	1				V
			HARV				1955.0	1958.0	3	1955.0	1958.0	2	IIIGG
			PALE				1955.5	1958.3	3				G
			HARV	2009.0		2							IIIG
	2038	2400	CULG	2103.0	2400.0	1	2103.5	2325.0	2				IS,C,DC
			LEAR				2321.0	0938.0	1				CONT
			CULG				2325.0	2400.0	1				IS,C,DC
15			CULG				0000.0	0715.0	1				IN,C
	0000	0722	CULG	0000.0	0229.5	1							IS
			CULG				0029.5	0030.0	2				IIIB
			CULG				0113.5	0200.0	1				SCINT
			CULG				0335.0	0450.0	1				SCINT
	0530	0826	WEIS				0525.0	1753.0	2				IIIS
			CULG				0538.0	0702.5	1				IIIN
			CULG	0556.0	0715.5	1							IN
	1232	2250	HARV				1234.0	1235.0	3	1235.0		1	IIIG
	1036	1816	WEIS				1234.3	1235.6	3				IIIG
			SGMR				1234.9	1235.3	2				V
			HARV				1244.0	2250.0	1				I
			HARV				1315.0	2127.0	2	1315.0	2110.0	2	IIIN
			HARV	1516.0	2025.0	1							INW
			SGMR				1521.3	1542.0	1				G
			SGMR				1613.0	2356.0	1				CONT
			HARV				1641.0	1646.0	2	1641.0	1645.0	2	IIIGG
			HARV				1656.0	1707.0	2	1657.0	1707.0	2	IIIGG
			PALE				1825.5	0445.0	1				CONT
			HARV				1904.0		3	1904.0		3	IIIG,U,V
			PALE				1904.0	1904.4	3				V
			SGMR				1904.0	1904.4	2				V
			PALE				2036.5	2036.7	2				III
			HARV	2049.0	2051.0	1	2049.0	2051.0	2	2051.0		1	IIIGG
			HARV	2055.0	2057.0	3	2055.0	2057.0	2	2055.0	2056.0	2	IIIGG
			PALE				2055.3	2055.8	2				III
			PALE				2300.3	2301.8	2				V
	2039	2400	CULG	2300.5	2301.0	1	2300.0	2301.5	2				IIIG
16			PALE				0058.3	0100.5	3				V
			LEAR				0058.6	0100.6	2				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
16	0000	0738	CULG	0059.5	0100.5	3	0058.0	0100.0	3	0058.5	0100.0	2	IIIGG
			CULG				0104.5	0651.5	1				IIIN
			CULG				0133.0	0650.5	2				IIIN
			PALE				0133.2	0133.5	2				III
			LEAR				0133.3	0133.5	1				III
			LEAR				0233.9	0234.1	1				III
			CULG	0249.0	0250.0	1							DCIM,N
			LEAR				0315.0	0329.0	1				G
			PALE				0324.3	0327.0	2				G
			CULG				0325.0	0327.0	3	0325.5	0327.0	2	IIIG
			CULG	0325.0	0332.0	2							IS
			LEAR				0357.9	0358.1	1				III
			LEAR				0448.4	0457.7	1				III
			CULG				0448.5	0449.0	3	0448.5		1	IIIB,V
			CULG	0527.0	0706.0		0543.5	0710.0					IS,W,C
			CULG				0543.5	0545.5	1				POSS
	0510	1829	WEIS				0545.9	0546.0	2				DP
			WEIS				0640.2	0640.9	1				IIIG
			LEAR				0640.3	0652.7	1				G
			WEIS				0642.1	0642.3	1				U
			WEIS				0644.3	0644.4	3				U
			WEIS				0650.2	0651.6	3				IIIG
			LEAR				0658.0	0939.0	1				CONT
			WEIS				0723.2	0724.6	2				IIIG
			WEIS				0851.7	0857.3	3				DCIM,CONT
			WEIS				0853.6	0857.4	2				II GG
			WEIS				0900.7	0908.9	2				IIIGG
			WEIS				0908.3	0909.7	3				DCIM
			WEIS				0917.8	0918.5	3				IIIG
			WEIS				0922.2	0923.9	3				IIIG,U
			WEIS				0927.7	0927.9	1				IIIG
			WEIS				1009.4	1009.6	2				IIIG
			WEIS				1103.1	1103.3	1				IIIB
			WEIS				1153.0	1701.0	1				IN
			WEIS				1206.8	1207.0	1				IIIB
			WEIS				1221.3	1221.4	1				IIIB
	1232	2400	HARV				1238.0	1620.0	1				IN
			WEIS				1245.3	1245.6	2				IIIB
			HARV	1255.0	1256.0	2							IIIG
			HARV	1258.0	2304.0	2							IIIN
			WEIS				1316.9	1317.0	1				111B
			HARV				1317.0		2				IIIG
			WEIS				1346.6	1346.9	1				IIIG
			WEIS				1417.1	1417.2	1				IIIG
			WEIS				1428.7	1429.9	2				IIIG
			SGMR				1429.7	1429.8	1				III
			HARV				1430.0	2304.0	2	1430.0	2115.0	2	IIIN
			WEIS				1442.8	1443.3	2				IIIB,RS
			HARV	1446.0	1447.0	1							IIIG
			WEIS				1508.1	1508.3	1				RS
			WEIS				1531.4	1531.5	1				IIIB
			WEIS				1542.2	1543.4	1				IIIG
			HARV				1620.0	2400.0	1				I
			WEIS				1637.9	1639.1	3				IIIG
			HARV	1638.0	1639.0	1	1638.0	1639.0	2	1638.0	1639.0	2	IIIG
			WEIS				1710.7	1712.7	1				DCIM
			HARV	1711.0	1713.0	2							IIIGG
	2038	2400	CULG	2103.0	2400.0	1	2110.0	2400.0	1				IS,C
			CULG				2110.5	2356.5	1				IIIG,N
			CULG	2115.0	2327.0	1							DCIM,N
			CULG				2127.5	2150.0					IIIS,W
			CULG				2133.0	2254.0	2				IIIG,N
			PALE				2133.0	2150.3	2				GG
			HARV				2138.0	2140.0	2				IIIG
			CULG				2142.0	2150.5	3				IIIG,NS
			HARV				2142.0	2145.0	3	2142.0	2145.0	1	IIIGG
			HARV				2149.0	2151.0	3				IIIG
			HARV	2326.0	2327.0	2							IIIG
			PALE				2351.8	2355.2	3				V
			CULG				2352.0	2355.0	3	2352.0	2354.5	1	IIIGG
			LEAR				2352.2	2354.8	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
16			HARV	2353.0	2356.0	2							IV
			CULG	2354.0	2356.0	1							CONT
			HARV	2354.0	2358.0	2	2352.0	2358.0	3	2352.0	2354.0	1	IIIGG,V
17			CULG	0000.0	0652.0	1							IN,C
	0000	0738	CULG				0000.0	0712.5					IS,W,C
			CULG	0009.5	0458.0	1							DCIM,N
			CULG				0021.0	0712.5	1				S,RSDP
			CULG				0025.5	0710.5	1				IIIN
			LEAR				0030.0	0939.0	1				CONT
			CULG				0042.5	0659.0	2				IIIN
			PALE				0047.2	0047.5	2				III
			CULG	0143.5	0144.0	1							IIIG
			CULG	0158.5	0202.0	2							IIIS
			CULG	0203.5	0209.0	2							IS,C
			CULG							0206.0	0216.0	1	SWF
	1129	1828	WEIS				0432.0	1807.0	1				IN
			LEAR				0535.8	0537.0	1				III
	0430	1117	WEIS				0833.0	1824.0	1				IIIN
			WEIS				1004.8	1009.3	3				IIIG
			WEIS				1032.1	1035.3	2				IIIG
			WEIS				1035.8	1038.6	3				DCIM
			WEIS				1037.2	1039.2	2				IIIG
			WEIS				1203.8	1204.4	3				IIIG
			WEIS				1214.3	1217.3	3				DCIM
			WEIS				1251.1	1257.3	3				IIIGG
			SGMR				1252.3	1318.0	1				GG
			HARV				1253.0	1257.0	3	1253.0	1254.0	1	IIIGG
	1253	2400	HARV				1253.0	2400.0	2				I
			HARV	1258.0	1259.0	1	1258.0	1304.0	3	1259.0	1303.0	1	IIIGG
			WEIS				1258.1	1304.0	3				IIIGG/V
			HARV				1307.0	2302.0	2	1517.0	2302.0	2	IIIN
			HARV	1310.0	2400.0	1							IN
			WEIS				1310.2	1310.6	2				DCIM
			HARV				1439.0		2	1439.0		2	IIIG
			WEIS				1439.2	1439.4	3				IIIB
			SGMR				1439.3	1439.4	1				III
			HARV				1451.0	1454.0	2	1451.0	1454.0	1	IIIGG
			WEIS				1451.2	1454.1	3				IIIG
			HARV	1513.0	1515.0	1	1510.0	1516.0	2				IIIGG
			WEIS				1517.1	1517.3	2				IIIG
			SGMR				1517.2	1520.2	1				III
			HARV				1520.0	1529.0	3	1520.0		2	IIIGG
			WEIS				1520.1	1520.3	3				IIIG
			HARV				1603.0	1604.0	3	1603.0	1604.0	2	IIIGG
			WEIS				1603.3	1604.2	3				IIIG
			HARV				1607.0	1608.0	2	1608.0		2	IIIG
			WEIS				1608.0	1608.6	2				IIIG
			HARV				1637.0		2	1637.0		1	IIIG
			HARV				1708.0	1709.0	2	1708.0	1709.0	2	IIIG
			HARV				1719.0	1723.0	3	1719.0	1723.0	2	IIIGG
			WEIS				1719.7	1723.1	2				IIIG
			HARV				1748.0		2	1748.0		2	IIIG
			HARV				1823.0	1824.0	2	1824.0		2	IIIG
			HARV				1855.0	1856.0	2	1855.0	1856.0	2	IIIGG
			PALE				1855.6	1901.8	1				G
			HARV	1859.0	1902.0	1	1859.0	1902.0	3	1900.0	1902.0	2	IIIGG
			HARV				1918.0	1920.0	2	1918.0	1920.0	2	IIIG
			PALE				1919.6	1956.5	2				GG
			HARV	1927.0	1936.0	2	1927.0	1936.0	2	1927.0	1936.0	2	IIIGG
			HARV	1951.0	1954.0	2	1950.0	1956.0	2	1950.0	1956.0	2	IIIGG
	2038	2400	CULG	2101.0	2307.0		2113.5	2400.0					IS,W
			HARV	2124.0	2126.0	2	2124.0	2126.0	3	2124.0	2126.0	2	IIIGG,V
			PALE				2124.3	2126.2	3				V
			CULG	2124.5	2125.5	3	2124.5	2127.0	3				IIIG,V
			SGMR				2124.5	2126.1	2				V
			HARV	2136.0	2139.0	3	2136.0	2139.0	3				IIIGG
			CULG	2136.5	2148.0	2	2136.0	2302.5	2				IIIG,N
			CULG				2142.0	2146.0	1				IIIGG
			HARV	2147.0	2148.0	3	2142.0	2148.0	3				IIIGG
			PALE				2252.8	2253.0	2				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
17			PALE				2302.0	2314.0	2				GG
			HARV	2307.0	2333.0	2	2309.0	2333.0	3	2309.0	2317.0	2	IIIGG,V
			CULG	2309.0	2320.0	2	2309.0	2331.5	3	2314.5	2332.0	2	IIIS,V
			CULG	2309.0	2334.0	1	2309.0	2355.0	1				IS,C,DC
			HARV	2310.0	2333.0	2	2310.0	2333.0	3				IV
			SGMR				2312.8	2329.9	1				GG
			PALE				2314.0	2329.9	3				V
			LEAR				2314.7	2317.1	1				III
			CULG	2315.0	2817.0	2							CONT
			CULG							2318.5	2323.0		SWF,W
			LEAR				2322.9	2330.3	1				V
			CULG	2323.0	2332.0	3	2322.5	2332.0	3				II
			HARV				2323.0	2330.0	2				UNCL
			HARV	2339.0	2340.0	2							IIIG
			CULG	2344.0	2344.5	2							DCIM
			HARV	2344.0	2352.0	3							IIIGG
			CULG	2347.0	2350.0	1							IS
			LEAR				2352.2	2354.8	1				III
18			CULG	0000.0	0712.0	1							IN
			CULG				0034.0	0711.5					IIIS,W
			CULG	0034.0	0517.5	1	0042.5	0702.5	1				IIIN
	0000	0738	CULG	0054.0	0713.0		0000.0	0711.5					IS,W
			CULG				0114.0		2				IIIB,U
			LEAR				0214.3	0215.0	1				III
			PALE				0214.3	0214.6	2				III
			CULG	0319.0	0320.0	2	0319.0	0320.0	3	0319.0	0320.0	3	IIIG,V
			PALE				0319.1	0320.1	3				V
			LEAR				0319.2	0325.1	2				III
			CULG	0540.5	0710.5	2	0540.5	0710.5	2				IIIG,N
			CULG	0546.0	0358.5	3							IIIG,N
			WEIS				0631.0	1656.0	2				IIIN
			LEAR				0631.1	0633.2	2				III
			CULG	0632.0	0632.5	2	0631.0	0633.0	3				IIIG,V
			WEIS				0842.1	0842.7	2				IIIG
			WEIS				0843.7	0844.8	3				IIIG
			WEIS				0859.0	0859.9	3				IIIG
			WEIS				1006.9	1010.2	3				IIIG
			WEIS				1112.2	1114.3	3				IIIG
			SGMR				1225.8	1226.0	1				III
			WEIS				1225.8	1226.6	3				IIIG
	1232	2300	HARV				1244.0	1724.0	1				IN
			HARV	1300.0	1302.0	2	1300.0	1302.0	3				IIIGG
			WEIS				1300.3	1301.7	3				IIIG,DCIM
			HARV	1315.0	1443.0	1							IIIN
			HARV				1320.0	2301.0	2	1519.0	2011.0	2	IIIN
			WEIS				1329.8	1333.7	3				111GG
			SGMR				1330.0	1333.5	1				V
			HARV	1333.0		2	1330.0	1333.0	3	1330.0	1332.0	2	IIIGG
			WEIS				1341.8	1346.0	3				IIIGG
			HARV	1351.0	1354.0	2	1351.0	1354.0	3				IIIGG,V
			WEIS				1352.3	1354.3	3				IIIGG,U
			HARV				1359.0	1400.0	2				IIIG
			HARV				1404.0	1405.0	2				IIIG
			WEIS				1421.7	1422.3	3				IIIG
			HARV				1425.0	1427.0	2				IIIGG
			WEIS				1425.0	1427.3	2				IIIGG
	0430	1746	WEIS				1441.0	1739.0	1				IN
			WEIS				1446.8	1449.1	3				IIIG
			HARV	1447.0	1450.0	2	1447.0	1450.0	2				IIIG
			HARV				1523.0	1528.0	2	1523.0	1528.0	1	IIIG
			HARV				1544.0	1546.0	2	1544.0	1546.0	1	IIIG
			HARV				1553.0	1554.0	2	1553.0	1554.0	1	IIIG
			WEIS				1553.2	1553.4	3				IIIB
			HARV				1618.0	1619.0	3				IIIGG
			HARV				1623.0		2				IIIB
			WEIS				1628.8	1631.1	3				IIIGG
			HARV	1629.0	1631.0	2	1629.0	1631.0	3				IIIGG
			HARV				1724.0	1752.0	2				I
			HARV	1749.0	1752.0	1	1749.0	1754.0	3	1749.0	1752.0	2	IIIGG
			PALE				1749.7	1752.2	1				G

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
18			HARV				1752.0	2046.0	1				IN
			HARV	1938.0		1							I
			HARV				2003.0	2004.0	2				IIIG
			PALE				2011.5	2011.6	1				III
			HARV				2046.0	2111.0	2				I
	2039	2400	CULG	2100.0	2349.0	1	2110.5	2306.0	1				IN
			HARV	2111.0	2300.0	1							IN
			CULG	2144.5	2239.0	1	2126.5	2334.5	1				IIIN
			HARV				2145.0	2146.0	3	2145.0	2146.0	2	IIIG
			CULG				2145.5	2146.0	3				IIIB
			PALE				2145.7	2145.8	2				III
			HARV	2211.0	2212.0	1	2211.0	2212.0	2				IIIG
			CULG	2211.5	2225.0	2							IIIG,N
			HARV	2224.0	2226.0	3	2224.0	2226.0	3				IIIGG
			HARV	2236.0	2238.0	1	2236.0	2239.0	2				IIIG
			CULG	2252.0	2306.0	1							IS
			HARV				2254.0	2257.0	2				IIIGG
			CULG				2306.0	2306.5	3				IIIB,V
			PALE				2306.2	2306.6	2				III
19	0000	0738	CULG				0006.0	0656.0	3				IIIG,N
			PALE				0006.2	0042.7	2				GG
			CULG	0008.0	0704.0	1							IN
			CULG	0025.0	0029.0	2							IS
			CULG				0025.5	0649.5	2				IIIG,N
			CULG				0025.5	0701.5	1				IIIG,N
			CULG	0026.5	0542.5	3							IIIG,N
			CULG	0052.5	0115.0	2							IS,C
			PALE				0053.0	0121.4	3				IV
			CULG	0054.0	0101.0	2	0053.0	0106.5	3	0053.5	0102.0	2	IIIGG,V
			CULG				0100.0	0109.0	1				SWF
			CULG				0105.5	0124.0	2	0111.0	0115.0	2	II
			PALE				0143.8	0201.9	2				GG
			PALE				0315.8	0316.0	2				III
			CULG				0401.5	0535.0					IIIS,W
			CULG							0424.0	0433.0		SWF,W
			CULG				0439.0	0441.5	3	0439.5	0440.5	1	IIIG
	0540	1834	WEIS				0540.7	0541.6	3				IIIG
			CULG				0544.0	0712.5	1				IS,C,DC
			WEIS				0625.0	1827.0	2				IIIN
			WEIS				0655.7	0656.1	3				IIIB
			WEIS				0802.0	1515.0	1				INDC
			WEIS				0917.0	1244.0	2				IS,CONT
	1227	2245	HARV				1236.0	1627.0	2				I
			HARV				1248.0	1249.0	2				IIIG
			WEIS				1248.3	1249.2	3				IIIG
			HARV				1313.0	1320.0	3	1315.0		1	IIIGG
			WEIS				1313.0	1320.7	3				IIIG
			HARV				1326.0	1328.0	2				IIIGG
			WEIS				1326.2	1327.2	1				IIIG
			HARV				1336.0	1340.0	3				IIIGG
			WEIS				1336.3	1340.2	3				IIIG
			HARV				1342.0	2226.0	2	1450.0	2216.0	2	IIIN
			HARV				1344.0	1346.0	3				IIIGG
			WEIS				1431.7	1432.9	3				IIIGG
			HARV	1432.0	1433.0	2	1432.0	1434.0	3				IIIGG
			HARV	1432.0	2214.0	1							IN
			HARV	1455.0		1	1455.0		2				IIIG
			HARV				1504.0	1505.0	2				IIIG
			HARV				1514.0	1516.0	2				IIIG
			HARV	1531.0	1532.0	1	1531.0	1533.0	2				IIIGG
			WEIS				1534.7	1536.8	3				IIIGG
			HARV	1535.0	1539.0	1	1535.0	1540.0	3	1536.0	1537.0	2	IIIGG,V
			WEIS				1605.7	1612.7	2				IIIGG
			SGMR				1609.4	1612.6	1				V
			WEIS				1609.9	1612.2	3				DCIM
			HARV	1610.0	1612.0	1	1606.0	1613.0	3	1606.0	1612.0	2	IIIGG
			HARV				1618.0	1619.0	2				UNCL
			HARV				1627.0	2245.0	1				IN
			SGMR				1811.9	1812.3	1				V
			HARV				1821.0	1822.0	2	1821.0	1822.0	2	IIIG,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
19			SGMR				1821.1	1821.5	2				V
			PALE				1821.2	1916.6	2				GG
			HARV				1826.0	1827.0	2				IIIGG
			HARV				1836.0	1839.0	2	1836.0	1839.0	2	IIIGG
			SGMR				1836.3	1848.3	1				GG
			HARV	1841.0	1850.0	2	1841.0	1850.0	2	1841.0	1850.0	2	IIIGG
			SGMR				1910.7	1918.4	1				V
			SGMR				1920.7	2048.5	1				GG
			SGMR				1933.5	1935.7	2				V
			PALE				1933.6	2028.4	2				GG
			HARV	1934.0	1935.0	2	1933.0	1935.0	2	1933.0	1935.0	2	IIIGG,V
			HARV				1945.0	1946.0	2				IIIG
			HARV				1955.0	1959.0	2				IIIGG
			HARV	2009.0	2018.0	2	2009.0	2020.0	3	2011.0	2021.0	2	IIIGG,V
			HARV	2009.0	2021.0	1							IV
			PALE				2013.8	2016.9	3				V
			HARV				2028.0		2	2028.0		2	IIIG
			CULG				2213.5	2219.5	1				IIIN
	2039	2400	CULG	2213.5	2217.0	1							DCIM,N
			PALE				2213.8	2221.8	2				G
			CULG				2215.0	2216.0	2				IIIG
			SGMR				2215.3	2221.4	1				GG
			CULG				2219.5	2222.0	3				IIIG,V
			HARV				2220.0	2222.0	3	2220.0	2222.0	2	IIIGG,V
			CULG				2334.0	2338.5	2				IS
			CULG				2341.5	2343.5	2				IIIG,U
20	0000	0735	CULG				0010.0	0017.5	1				IS
			CULG				0023.0	0647.0	1	0023.0	0440.5	1	IIIN
			CULG				0041.0	0459.0	2				IIIG,N
			LEAR				0041.1	0041.8	1				III
			PALE				0041.1	0128.0	2				GG
			LEAR				0106.8	0113.2	1				G
			LEAR				0127.5	0128.1	1				III
			LEAR				0140.6	0142.0	1				III
			PALE				0151.9	0154.1	2				G
			CULG	0202.0	0641.5	2	0127.5	0642.0	3	0152.5	0420.0	2	IIIG,N
			PALE				0202.9	0234.5	3				GG
			CULG	0207.0	0205.0	2	0204.0	0205.0	1				POSS II
			CULG				0211.5	0219.5	1				IN
			LEAR				0312.0	0940.0	1				CONT
			LEAR				0412.9	0421.1	3				III
			PALE				0412.9	0417.8	2				G
			CULG				0417.0	0421.0	3	0417.0	0420.0	3	IIIGG,V
			PALE				0417.8	0419.9	3				V
	0425	1142	WEIS				0430.0	1752.0	1				IIIN
			CULG				0430.5	0442.0	1				POSS II
			CULG				0433.0	0447.5	2				IIIS
			LEAR				0640.6	0641.8	2				III
	1147	1832	WEIS				0640.7	0641.1	3				IIIG
			WEIS				0845.2	0847.3	3				IIIG
			WEIS				0910.1	0910.5	3				IIIG
			WEIS				0954.9	0956.1	3				IIIG
			WEIS				1028.2	1028.4	2				U
			SGMR				1258.1	1258.2	1				V
	1231	2255	HARV				1311.0	2255.0	2	1850.0	2113.0	2	IIIN
			HARV				1331.0	1332.0	2				IIIG
			WEIS				1331.01	1332.33	3				IIIG
			SGMR				1332.0	1332.2	1				V
			HARV				1400.0	1414.0	1				IW
			HARV				1403.0	1404.0	2				IIIG
			SGMR				1403.5	1404.0	1				V
			HARV				1444.0	1445.0	2				IIIG
			HARV				1457.0	1459.0	3	1457.0	1458.0	2	IIIGG,V
			WEIS				1457.3	1459.4	3				IIIGG
			SGMR				1457.5	1459.0	2				V
			HARV				1548.0		3	1548.0		2	IIIG
			SGMR				1549.0	1553.1	1				V
			HARV	1552.0		2	1551.0	1553.0	3	1551.0	1553.0	2	IIIGG
			HARV	1633.0	1634.0	2							IIIG
			WEIS				1656.7	1658.2	2				IIIG,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
20			HARV				1657.0	1700.0	2	1657.0	1700.0	2	IIIG,U
			HARV				1751.0	1752.0	2	1751.0	1752.0	2	IIIG
			PALE				1751.5	1751.8	1				III
			SGMR				1751.5	1752.5	1				V
			HARV	1825.0	1826.0	2	1825.0	1827.0	2	1825.0	1827.0	2	IIIG
			SGMR				1826.8	2136.1	1				GG
			PALE				2003.7	2004.1	1				III
			HARV				2004.0		2	2004.0		2	IIIG
			HARV				2005.0	2006.0	2				I
			HARV	2019.0		1	2017.0	2019.0	3				IIIG
			PALE				2024.7	2025.0	1				III
			HARV				2025.0	2026.0	2	2025.0	2026.0	2	IIIG,V
			PALE				2025.5	2026.1	2				V
			HARV	2058.0		2							IIIG
	2039	2400	CULG				2113.0	2259.5	1				IIIN
			CULG	2148.5	2150.5	2	2149.0	2150.5	1				IIIGG
			HARV	2149.0	2151.0	2	2149.0	2151.0	2				IIIGG
			HARV				2153.0	2156.0	3	2153.0	2156.0	2	IIIGG
			CULG				2153.5	2202.5	3				IIIGG,V
			PALE				2153.5	2202.6	3				V
			SGMR				2153.8	2159.5	2				V
			HARV				2158.0	2202.0	2	2158.0	2201.0	2	IIIGG,V
			HARV	2211.0		2	2211.0		2				IIIG
			CULG				2235.5	2303.5	2				IIIN
			HARV				2236.0	2239.0	2				IIIGG
			CULG	2304.5	2323.5	1	2304.5	2324.0	2				IIIS
			PALE				2304.5	2315.0	3				V
			CULG	2309.5	2316.0	1	2309.5	2316.0	1				CONT
			CULG	2310.0	2311.0	2							DCIM
			CULG	2310.0	2311.0	2	2308.0	2312.0	3				IIIGG,V
			CULG	2312.0	2316.0	1	2312.0	2315.0	2				P
			PALE				2318.2	2324.0	2				G
21	0000	0738	CULG				0013.0		1				IIIB
			LEAR				0114.4	0117.3	3				III
			PALE				0114.7	0117.3	3				V
			CULG	0115.0	0116.0	1							CONT
			CULG	0115.0	0116.5	3	0114.5	0117.5	3	0115.0	0117.0	2	IIIG,V
			LEAR				0213.3	0213.6	1				III
			PALE				0213.3	0213.6	2				III
			CULG				0213.5		2	0213.5		2	IIIB
			CULG				0306.5	0307.5	2				IIIG
			PALE				0306.5	0307.9	2				G
			LEAR				0306.7	0307.8	1				III
			LEAR				0340.1	0342.0	1				III
			CULG				0417.0		2				IIIB
	0426	1249	WEIS				1155.7	1155.9	1				IIIG
			WEIS				1158.3	1158.4	1				IIIB
	1231	2310	HARV	1309.0		1	1309.0		1				IIIGW
			SGMR				1309.0	1309.3	1				III
			HARV				1345.0		1				IIIBW
			HARV				1426.0		1				IIIB
			HARV	1434.0	1821.0	1							IN
			HARV	1641.0	1644.0	2	1642.0	1644.0	3	1642.0	1644.0	2	IIIGG
			SGMR				1642.5	1643.2	1				V
			HARV	1659.0	1700.0	2	1659.0		1	1659.0		1	IIIG
			HARV				1701.0	1706.0	3	1701.0	1706.0	2	IIIGG
			SGMR				1701.8	1702.0	1				V
			SGMR				1822.0	1824.0	1				V
			PALE				1822.4	1823.6	2				V
			HARV	1823.0		2	1821.0	1824.0	3	1821.0	1824.0	2	IIIGG,V
			HARV				1826.0	1829.0	1	1829.0		1	IIIG
			HARV				1827.0	1832.0	3	1831.0	1832.0	2	II
			SGMR				1901.8	1702.0	1				V
	2039	2400	CULG	2128.0	2128.5	2	2128.0		2				IIIG
			HARV	2128.0	2129.0	2	2128.0	2129.0	2				IIIG
			CULG				2219.0		1				IIIG
			CULG				2338.5		1				IIIB
			CULG	2343.0	2343.5	1							IIIG
22	0000	0738	CULG				0001.0		2				IIIB,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
22			LEAR				0001.0	0001.3	1				III
			CULG	0013.5		2							DCIM
			CULG	0110.5	0111.0	1							IIIG
			CULG	0144.0	0248.0	2	0144.0	0703.0	1				IIIN
			CULG				0224.5	0600.0	2	0236.0	0248.0	1	IIIN
			LEAR				0224.5	0224.8	1				III
			PALE				0224.5	0243.7	2				GG
			LEAR				0229.8	0236.3	1				III
			LEAR				0241.9	0248.3	1				III
			LEAR				0413.7	0413.9	1				III
			CULG	0510.5	0513.0	2	0512.0	0514.0	3				IIIG
			LEAR				0512.2	0513.6	2				III
			LEAR				0525.8	0526.0	1				III
			LEAR				0529.7	0529.9	1				III
			LEAR				0558.0	0601.0	1				III
	1231	2400	HARV	1646.0	1700.0	3							IV
			HARV				1649.0	1745.0	2				I
			HARV	1653.0	1709.0	3							IIIGG,RS
			HARV				1702.0	1730.0	2	1713.0	1723.0	2	IIIS
	1600	1830	WEIS				1707.2	1719.0	1				IIIGG
			SGMR				1713.4	1722.0	1				V
			HARV				1720.0	1730.0	2	1720.0	1730.0	2	II
			WEIS				1720.8	1725.3	1				II
			SGMR				1720.9	1729.2	1				II
			WEIS				1724.8	1726.3	2				IIIG
			WEIS				1743.1	1743.3	1				IIIG
			HARV	1956.0		1	1954.0	1956.0	1				IIIGW
			HARV				2035.0	2036.0	1				IIIBW
	2039	2400	CULG										
			HARV				2251.0		1				IIIBW
23	0000	0738	CULG				0125.0	0125.5	1				IIIG
	0429	1720	WEIS										
	1232	2300	HARV				1333.0		2				IIIG
			HARV				1545.0	1546.0	1				IIIB
	1733	1820	WEIS										
			HARV				1745.0		1				IIIBW
	2039	2400	CULG										
24	0000	0738	CULG										
	0429	1822	WEIS										
	1231	2245	HARV										
	2039	2400	CULG										
25			LEAR				0111.8	0112.0	1				III
	0000	0650	CULG				0113.0		2	0113.0		1	IIIB
	0431	0953	WEIS										
	0700	0738	CULG										
	1232	2300	HARV	1522.0	1523.0	1							IIIBW
			HARV				1533.0	1534.0	2	1533.0	1544.0	1	IIIGG
	1055	1822	WEIS				1533.2	1534.1	1				IIIG
	2039	2400	CULG										
26	0000	0738	CULG	0657.0		1							I
	0709	1826	WEIS										
	1232	2300	HARV										
	2217	2400	CULG										
27	0000	0738	CULG				0719.0	0720.5	1				IIIG
	0432	0751	WEIS				0719.2	0720.9	2				IIIG
			LEAR				0719.9	0720.1	1				III
	1232	2255	HARV	1403.0	1404.0	1	1402.0	1404.0	1				IIIGW
			HARV	1418.0	1420.0	1	1417.0	1419.0	2				IIIGG
			HARV				1732.0	1733.0	2	1732.0	1733.0	2	IIIG
			SGMR				1732.7	1733.0	1				III
	2337	2400	CULG										
28	0000	0738	CULG										
	0806	1550	WEIS										
	1232	2250	HARV	1604.0		2							IIIB
	1655	1825	WEIS										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

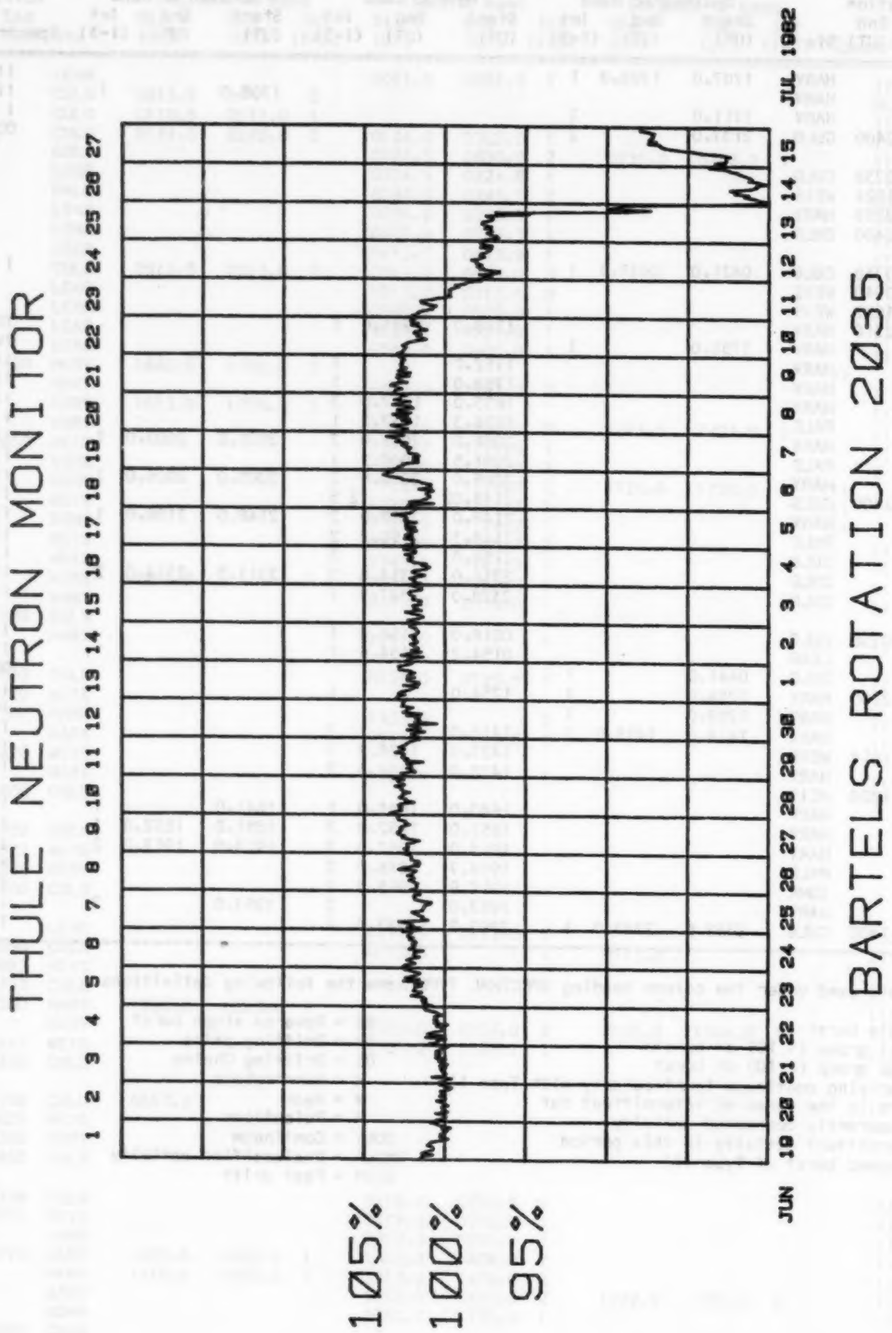
JULY 1982

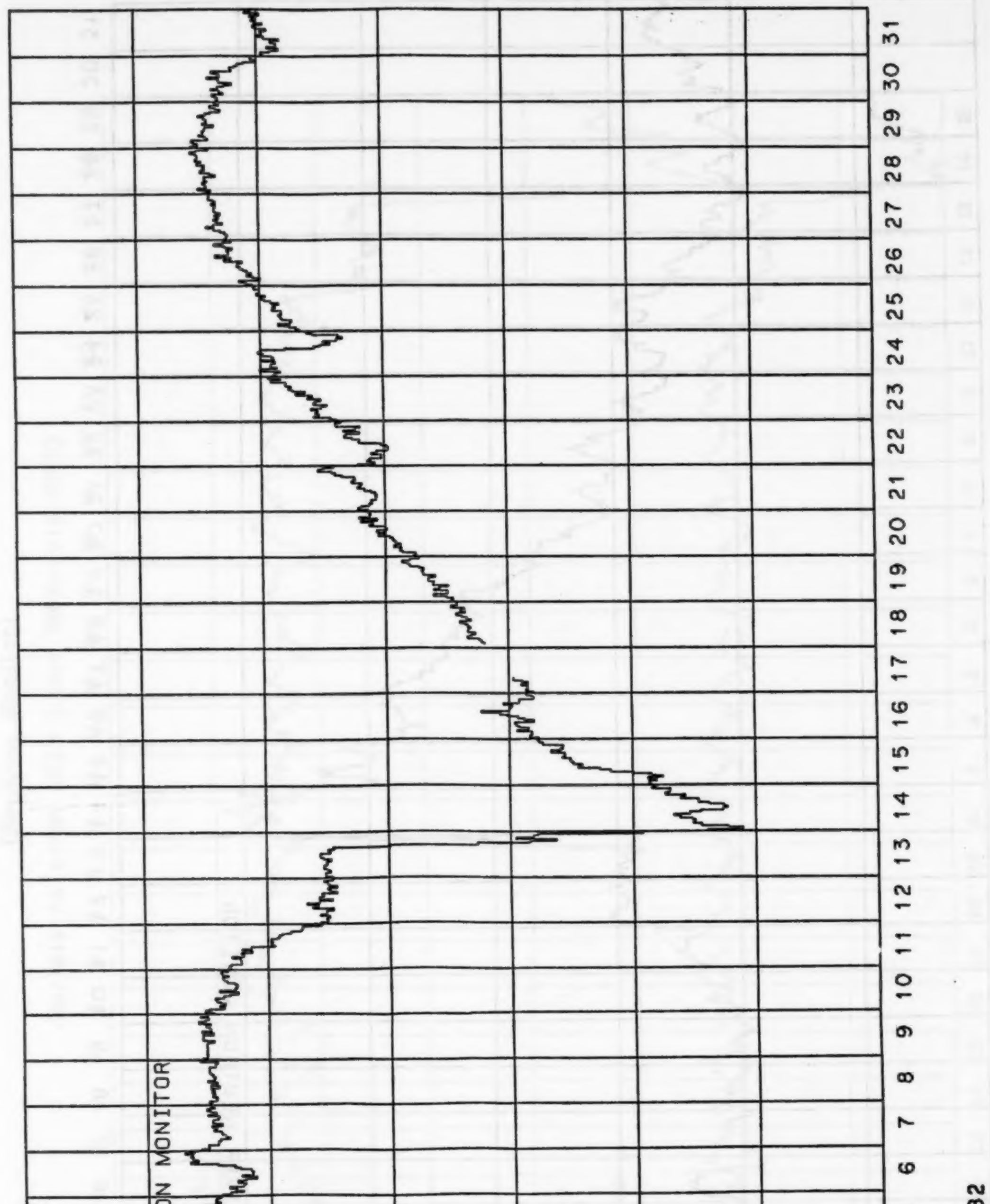
Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
28			HARV	1707.0	1708.0	1							IIIG
			HARV							1708.0		1	IIIG
			HARV	1711.0		1							I
	2039	2400	CULG	2137.0		2							DCIM
29	0000	0738	CULG										
	0435	1824	WEIS										
	1232	2255	HARV										
	2039	2400	CULG										
30	0000	0738	CULG	0421.0	0421.5	1							I
	0435	0940	WEIS										
	0949	1822	WEIS										
	1232	2310	HARV				1748.0	1933.0	1				IN
			HARV	1750.0		1							IW
			HARV				1752.0		1				IIIG
			HARV				1758.0		1				IIIG
			HARV				1835.0	1837.0	3				IIIGG,V
			PALE				1836.3	1837.2	1				V
			HARV				2001.0	2002.0	2	2001.0	2002.0	1	IIIG
			PALE				2001.5	2006.2	1				III
			HARV				2005.0	2006.0	2	2005.0	2006.0	1	IIIG
	2039	2400	CULG				2148.02	2	5				IIIGG
			HARV				2148.0	2150.0	2	2148.0	2150.0	1	IIIG
			PALE				2148.3	2150.2	2				III
			CULG				2150.0		3				IIIB
			CULG				2311.0	2314.0	3	2311.5	2314.0	2	IIIG
			CULG				2328.0	2347.5	1				IIIN
31	0000	0738	CULG				0018.0	0158.0	1				IIIN
			LEAR				0154.2	0154.6	1				III
			CULG	0441.0		1							DCIM
	1244	2300	HARV	1254.0		1	1254.0		1				IIIG
			HARV	1259.0		1							IW
			HARV	1416.0	1418.0	1	1416.01		2				I
	0432	1614	WEIS				1427.9	1428.2	1				IIIB
			HARV				1428.0	1434.0	2				IIIGG
	1622	1820	WEIS										
			HARV				1640.0	1641.0	1	1641.0		1	IIIGW
			HARV				1851.0	1852.0	2	1851.0	1852.0	1	IIIG
			HARV				1914.0	1917.0	3	1914.0	1917.0	2	IIIGG
			PALE				1914.7	1916.0	2				V
			SGMR				1914.8	1915.2	1				V
			HARV				1957.0		2	1957.0		2	IIIG
	2158	2400	CULG	2332.5	2343.0	1	2303.5	2343.0	1				IIIN

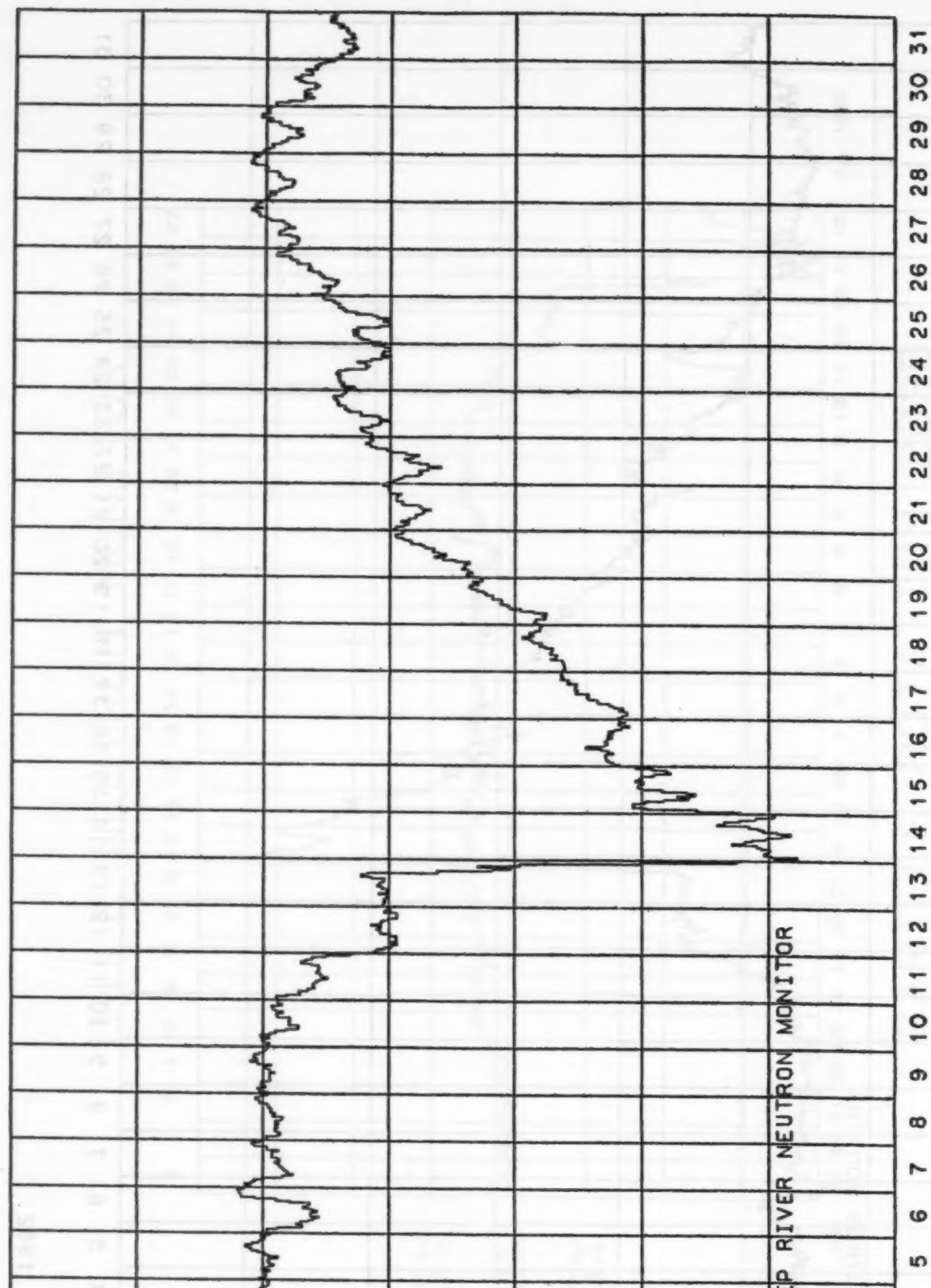
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift


THULE NEUTRON MONITOR
105%
100%
95%
BARTELS ROTATION 2035
JUN 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 JUL 1982
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27


ALERT NEUTRON MONITOR
JULY 1982
100
95
90
85
80
75
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31


B 211 DEEP RIVER NEUTRON MONITOR
JULY 1982
105
100
95
90
85
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75
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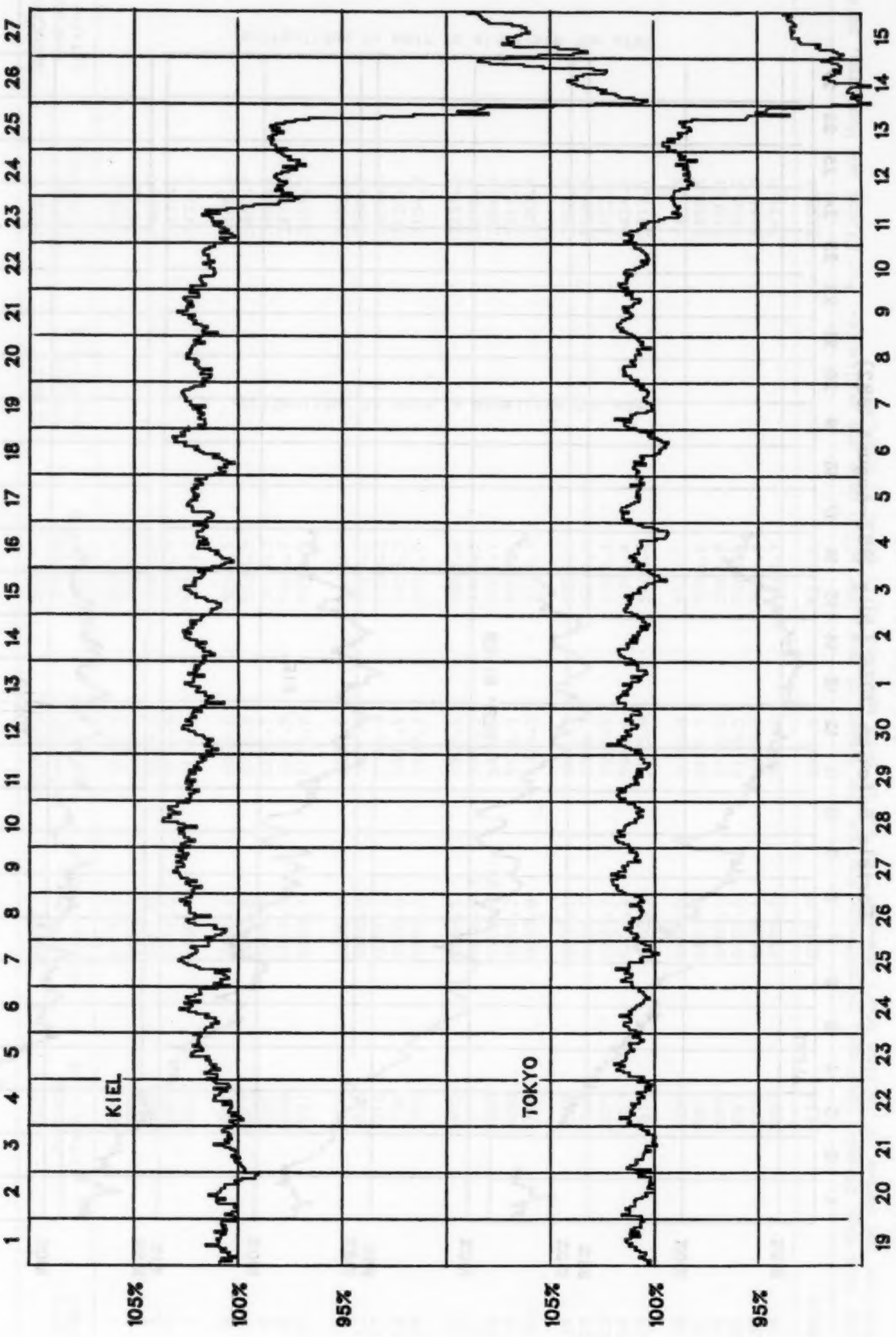
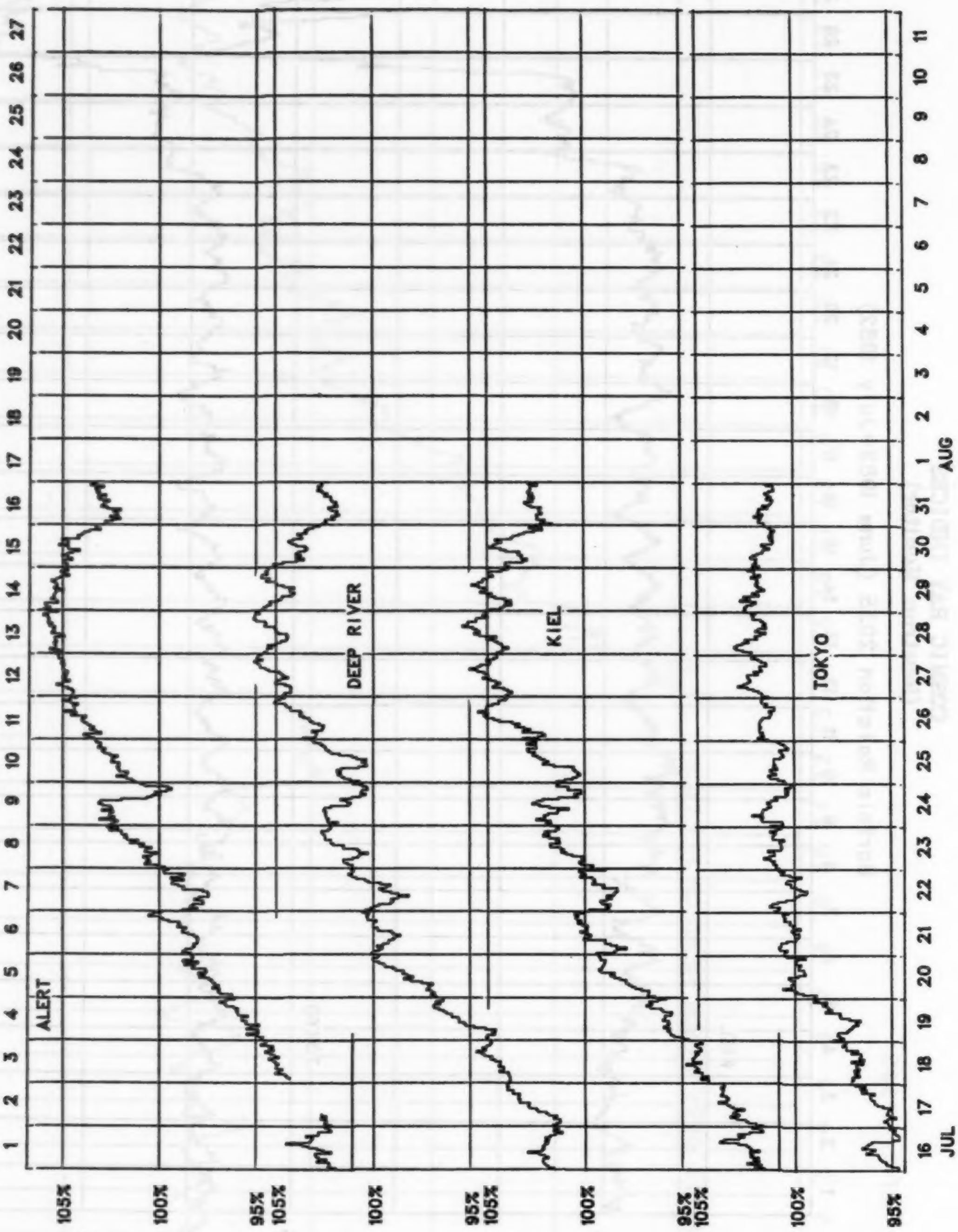
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2035 (June 1982–July 1982)



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2036 (July 1982–August 1982)



COSMIC RAY INDICES
(Neutron Monitors)
July 1982

July 1982	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	4009	6496.5	6152.4	5548.9	Data not available at time of publication.	3476.7	Data not available at time of publication.
2	3992	6462.3	6133.1	5554.8		3470.8	
3	3990	6457.6	6129.4	5541.9		3461.0	
4	3989	6474.0	6110.5	5523.9		3451.6	
5	4005	6490.7	6151.8	5552.3		3472.0	
6	3992	6466.4	6098.6	5540.1		3445.9	
7	4015	6493.8	6135.8	5560.3		3460.7	
8	4022	6499.9	6132.5	5554.3		3469.1	
9	4026	6515.3	6151.5	5563.7		3479.5	
10	3997	6465.7	6116.6	5530.9		3469.0	
11	3925	6356.8	6035.8	5460.7		3435.6	
12	3825	6185.8	5851.0	5325.2		3386.2	
13	3716	6001.1	5748.9	5199.2		3352.3	
14	3194	5176.0	4941.5	4553.3		3120.1	
15	3356	5455.3	5187.4	4716.5		3184.9	
16	3493	5649.5	5305.8	4864.8		3233.0	
17	3517	5628.3(7)	5353.3	4910.5		3243.1	
18	3586	5789.4(22)	5459.1	5003.1		3284.9	
19	3650	5889.2	5564.1	5094.1		3311.6	
20	3716	6008.9	5729.5	5220.3		3383.4	
21	3762	6087.1	5811.3	5294.2		3399.4	
22	3748	6068.3	5820.3	5270.8		3399.6	
23	3835	6224.7	5926.0	5369.4		3422.4	
24	3853	6261.3	5918.6	5394.4		3424.6	
25	3874	6303.5	5923.8	5408.4		3417.1	
26	3939	6406.0	6041.8	5527.3		3441.3	
27	3981	6459.0	6125.5	5566.8		3456.5	
28	4004	6495.4	6139.0	5583.8		3460.1	
29	3997	6485.6	6123.5	5566.3		3460.2	
30	3962	6428.4	6053.4	5505.1		3441.0	
31	3897	6328.7	5962.0	5448.7		3438.0	
Mean	3834	6210.0	5881.8	5346.9		3398.4	

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

JULY 1982

Day		Kp 1	Kp 2	Kp 3	Kp 4	Kp 5	Kp 6	Kp 7	Kp 8	Sum	A_p	C_p	Km 1	Km 2	Km 3	Km 4	Km 5	Km 6	Km 7	Km 8	A_m	aa N	aa S	aa M	
1		4+	3	3+	3+	3	2	4-	3+	26	18	1.0	4	3	4	3-	3-	2	3	4-	36	36	25	32	29
2	Q5A	3-	3	3	2-	2	2	3-	2+	19+	10	.6	3-	3-	3	2	2+	2	3-	2+	21	22	16	22	15
3	Q3	2+	2	1+	2-	1+	2-	1	1-	12	6	.3	2+	2+	1+	2-	1+	1+	1	1	11	11	12	13	10 CC
4	Q1	1	1	0+	1-	0+	0+	0	0+	4	2	.0	1	1	0	1-	0+	0	0	0+	3	5	4	6	4 CC
5	Q2	0+	0+	1-	0+	2+	1+	1	1	7+	4	.1	1-	0+	0+	1	2	1+	1	1	6	11	6	4	13 CC
6	Q9A	3	1+	1+	3-	2+	5-	4-	3	22	15	.9	3-	1+	1+	3-	2	4-	3	3-	23	34	23	18	38
7		4	4	3+	3	4-	4	4-	2	28-	21	1.1	4-	4-	3+	3	3	4	3+	2-	36	40	28	33	35
8	Q0A	2	3+	3	3+	2+	4-	3-	4-	24	15	.9	2	4-	3+	3	3-	3+	2	3	28	31	23	27	28
9	Q6A	4-	3-	3-	2	2-	2-	2	2	18+	10	.6	3+	3-	3-	2+	2-	2-	2	2	19	20	13	22	11
10	Q4A	3	3	2	2-	3-	2-	3-	1+	18	10	.5	3+	3	2+	3-	3	2-	2	1+	21	25	20	23	23
11		2	2+	2	5	6+	6-	4+	4	32-	36	1.4	2+	2+	2+	5-	5-	4	4-	3+	45	53	42	33	62
12	D5	3-	3-	2-	5	7-	7-	5	4+	35-	48	1.6	3-	3	2	4	5-	5-	4-	4-	47	55	37	19	73
13	D2	5-	6-	5	4+	4+	8+	9-	9	50	144	2.0	5-	5-	4+	4+	3+	7+	8	9-	204	228	197	61	364
14	D1	9	8-	7-	7	6	7	7-	6	56	153	2.0	9-	7	6+	6+	5-	5+	5+	6-	206	191	184	277	99
15		5	5-	4	5	4+	4+	4+	4+	36	36	1.4	5-	4+	4	5-	4	6+	4-	4-	57	55	49	57	48
16	D4	3+	3+	4+	6	3	6	4-	7	37-	50	1.6	4-	3+	3+	5-	3	5	3	6-	60	68	39	48	59
17		6	3+	3	4+	3	1+	1+	4-	26	24	1.2	6-	4	3	4	3	1	1+	3	44	41	28	46	23
18		4+	3-	4-	4	5	4-	3+	2+	29	24	1.1	4-	3	3	4-	4	3	3	2+	35	38	22	30	30
19		4	3-	3+	4	6-	4	3-	4+	31-	28	1.2	4	3-	3-	3+	4+	4-	2+	4	40	50	29	30	49
20		5	5+	5	3+	2	1	1+	2-	25-	24	1.2	5-	5-	4+	3-	2-	1-	1	2-	36	47	15	54	8
21	Q7A	2-	2-	2	1+	3-	3+	3+	3+	19+	11	.6	2	2	2	2-	2-	3-	3-	3	19	27	11	12	26
22		4-	2-	2+	2-	5-	4	3-	2-	22+	16	.9	3+	2	3	2+	4-	3	2-	2-	25	28	27	22	34
23	Q8A	3	2	2-	3-	4-	3-	3-	2+	21-	12	.7	3	2	2-	3-	3	3-	3-	3-	22	24	18	20	21
24	D3	4-	5	5-	4+	5-	7-	6	4	39	50	1.6	3+	5-	5-	4-	4-	6-	5-	4	65	79	55	41	94
25		4-	5	4	3-	3+	3-	3+	4-	28+	22	1.1	4	5-	4-	3	3	3-	3+	3+	43	36	39	45	31
26		5-	4	3+	4	4-	4+	4-	4	32-	27	1.2	4	4	3	4-	3	3+	3	3+	40	40	39	41	38
27		4-	5	5+	3-	3-	4-	3	4	30	27	1.2	4-	5-	5	3-	2+	3+	3-	3+	44	48	47	59	37
28		4-	3	4-	4	3	4-	4+	3-	28	21	1.1	4-	3	4-	4-	3-	3+	4-	3-	36	40	31	35	33
29		4+	2	4	3+	5-	4	3	2+	28-	22	1.1	4+	2+	4	4-	5-	3+	3-	3-	45	38	51	43	46
30		3-	2-	4-	3+	3+	5+	4-	4	28-	23	1.1	2+	2	4-	3+	3	4+	3	4-	35	45	37	30	52
31		3+	5-	5+	4	3+	3	3-	3	29+	25	1.2	4-	5-	5	5-	3	3	2+	3	50	38	45	59	24
Mean											30	1.05									45.2	48.5	39.1	43.9	

Day	Kn 1	Kn 2	Kn 3	Kn 4	Kn 5	Kn 6	Kn 7	Kn 8	A_n	Ks 1	Ks 2	Ks 3	Ks 4	Ks 5	Ks 6	Ks 7	Ks 8	A_s
1	4-	3	4	3	3-	2+	3+	3+	35	4+	3+	4-	2+	3-	2	3	4+	37
2	2+	3	3	2+	3-	2+	3	2	23	3-	3-	3-	2-	2	1+	2+	3-	19
3	3-	2	1+	2-	2	2-	1+	1-	12	2	2+	2-	2	1-	1	1-	1+	10
4	1	1	0+	1	0	0	0	0+	4	1	1	0	0+	0+	0	0	0	3
5	1-	0+	0+	1	2+	1+	1+	2-	8	0+	0+	0+	1-	1+	1	0+	0	4
6	3	2-	2-	3	3-	4+	3+	3	29	2	1	1+	3-	1+	3	3-	2	17
7	4	4-	4-	4-	3+	4-	3+	2+	41	3	4	3+	2+	3-	4	3	1+	32
8	3-	4-	3	3	3-	3+	2+	3	31	2-	3+	3+	3	2+	3	1+	3	26
9	3+	2+	3	3-	2-	2+	2+	3-	22	3	3-	3-	2-	1+	1+	2-	1	16
10	3+	3	2+	2+	3	2+	3-	2-	23	3+	3	2+	3-	3	1	1-	0+	19
11	3-	3-	3-	5	5+	5-	4	4-	57	2-	2+	2	4	4-	3	3+	3+	32
12	3-	3+	2+	5-	5	5	4-	4	54	3-	3	2-	3	4+	5-	3+	4-	39
13	4+	5	5-	5-	4-	8	8+	9	233	5-	4	4+	4	3-	7-	8	8+	176
14	9-	7-	6+	6+	5	5-	5-	5+	205	9-	7	7-	6	4+	5	5+	6-	208
15	4+	5-	4+	5-	4-	3+	4-	4-	58	5-	4+	4-	4+	4	3	4-	4-	56
16	3+	4-	4-	5+	3+	5	4-	6	72	4-	3	3	4+	3-	5-	2+	5	48
17	5+	4	3	5-	3	1+	1+	3+	45	6	4-	3	4-	3	1-	1	3	43
18	4-	3	3	4-	4+	3+	3	3-	39	4-	3	3-	4-	4-	2+	3	2	31
19	4	3	3	4	5-	4-	3-	4	47	4-	2+	2	2+	4-	3+	2+	4+	33
20	5-	5-	4+	3+	2	1-	1+	2+	37	5-	5-	4+	2+	1+	0+	0+	1+	35
21	2	2+	2+	2	2+	3	3	3+	23	2-	1+	1+	1+	1+	2	2+	3	14
22	4-	2	3	3-	4-	4-	2+	2	25	3	2-	3-	2	4-	3-	1+	1+	20
23	3-	2-	2-	2+	3	3	2+	3	22	3	2	2-	3-	3	2	3-	2	21
24	3	4+	4+	4-	4	5+	5	3+	64	3+	5-	5-	4-	3	6-	4+	4+	67
25	4-	5-	4	3	3	3-	3	3	41	4+	5-	4-	3+	3	3-	3+	3+	44
26	4	3+	3	4-	3	3+	3+	3+	39	4	5-	3	4-	3	3+	2	4-	41
27	3+	4+	5-	3-	3-	3+	3-	3	40	4	5	5+	2+	2	3+	2+	3+	47
28	4-	3	4-	4-	3-	3+	4-	3-	36	4-	3-	4-	4-	3-	3	4-	3	36
29	4	2+	4	4-	5	4-	3	2+	47	4+	2+	4	4-	4+	3	3-	3-	42
30	3-	2	4-	3+	3	5-	3	4-	37	2+	2	4	3	3-	4	3	4-	33
31	3+	5-	5+	5-	3	3	3-	3	53	4-	4+	5-	5-	3	3-	2	3-	46
Mean									48.6									41.8

The Geophysikalisches Institute, University of Goettingen, prepares the quiet (Q) and disturbed (D) days, geomagnetic planetary 3-hour-range indices (Kp), magnetic character figures (Cp) and average amplitude (Ap). The 10 most quiet days [Q1-Q0(10)] and the five most disturbed days (D1-D5) are ordered from most quiet and from most disturbed, respectively. A or K means "not really quiet" (A implies Ap > 6 and K implies Ap < 6 with either one Kp > 30 or two Kp values > 3-). An asterisk means "not really disturbed" (Ap < 20).

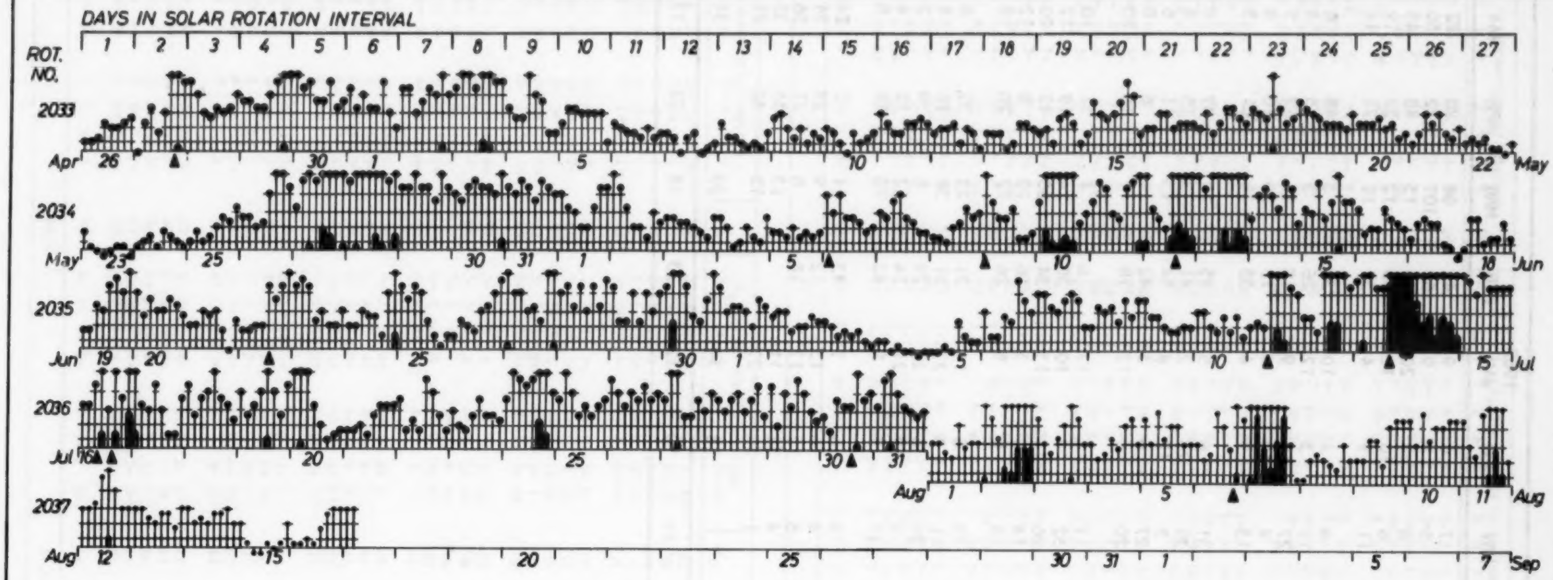
Geomagnetic 3-hour indices Km, Kn, Ks and daily mean values Am, An, As and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices, daily north (N) and south (S) values and half-daily antipodal mean (M) values are given. C indicates really quiet 24- and 48-hour intervals centered on 1200 UT; K indicates similar periods with some slightly disturbed 3-hour intervals.

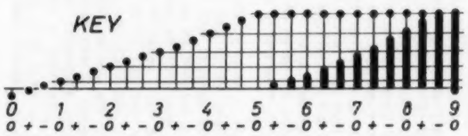
NOTE:
aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

DAILY AVERAGE INDICES A_p

DAY	1981 AUG	SEP	OCT	NOV	DEC	1982 JAN	FEB	MAR	APR	MAY	JUN	JUL
1	18	5	9	7	6	9	41	68	20	22	20	18
2	15	18	22	5	9	9	60	107	42	30	18	10
3	18	9	36	8	8	20	35	13	48	45	9	6
4	11	11	17	6	10	12	49	12	22	19	7	2
5	15	17	7	11	9	4	37	16	21	14	6	4
6	14	8	6	9	4	10	39	3	18	6	14	15
7	10	5	32	19	3	12	26	3	5	4	14	21
8	4	10	25	27	15	9	18	11	12	5	9	15
9	7	11	21	4	10	4	15	20	10	8	16	10
10	16	9	27	13	9	4	35	16	61	5	51	10
11	15	21	46	31	6	5	45	10	47	9	32	36
12	9	10	12	39	23	2	41	8	15	6	59	48
13	9	12	17	5	12	4	54	13	11	6	62	144
14	8	10	73	27	6	3	42	11	6	8	24	153
15	13	10	20	20	6	12	18	7	10	20	26	36
16	8	7	8	17	4	17	6	4	11	10	10	50
17	25	4	18	32	7	10	30	14	19	12	6	24
18	23	18	6	26	14	13	34	20	12	20	7	24
19	10	38	23	14	10	3	36	10	8	12	24	28
20	8	9	67	13	6	6	26	12	20	8	18	24
21	14	7	33	15	6	14	21	23	32	8	9	11
22	13	13	72	11	3	27	51	38	18	4	20	16
23	56	4	27	20	6	22	29	8	9	2	20	12
24	28	7	18	9	10	21	24	12	15	4	21	50
25	16	13	18	27	8	9	42	20	52	8	17	22
26	8	32	10	9	6	7	43	11	7	24	16	27
27	25	21	10	4	6	13	12	9	24	54	32	27
28	18	6	19	6	12	17	10	6	21	56	27	21
29	18	14	12	4	32	11		13	31	35	19	22
30	17	15	12	1	30	27		15	30	35	39	23
31	15		4		18	34		20		31		25
Mean	15	12	23	15	10	12	33	18	22	17	22	30

GEOMAGNETIC ACTIVITY INDICES





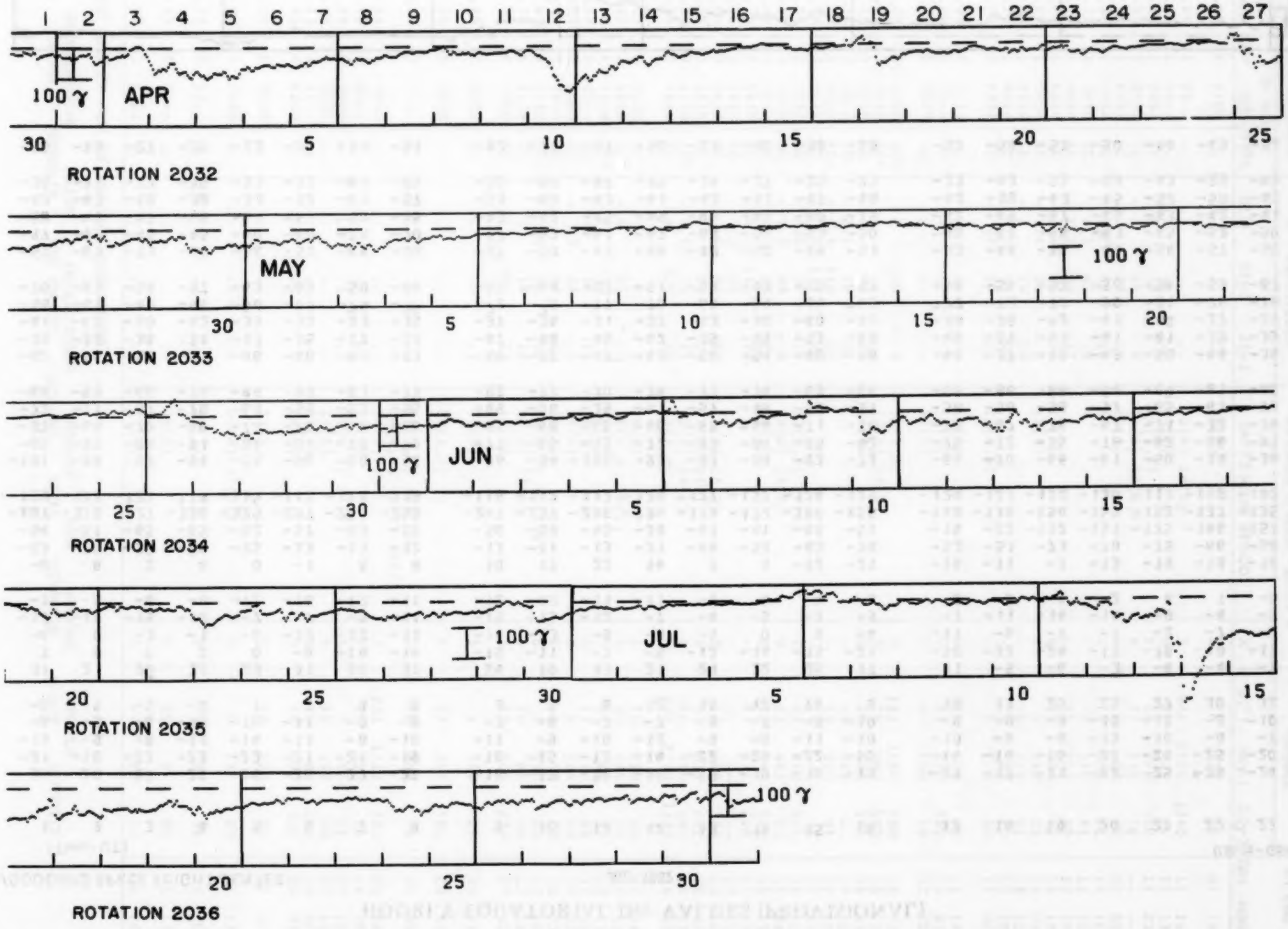
▲ = sudden commencement

PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp (after Bartels)

Kp till 1982 July 31

Ks (from Wingst and Göttingen) till Aug 17

GEOMAGNETIC ACTIVITY INDICES
Hourly Equatorial Dst
by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

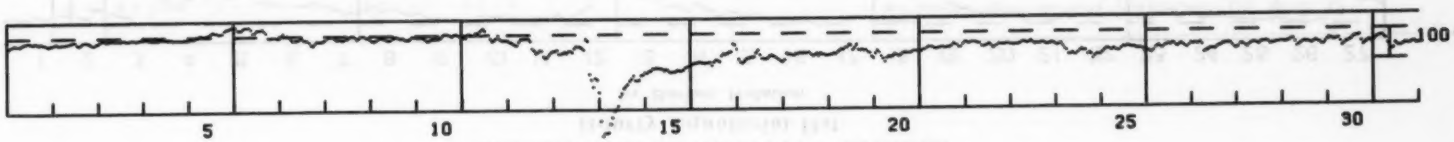
JULY 1982

(Units-Gammas)

(Time-UT)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-36	-29	-27	-23	-26	-26	-27	-22	-18	-17	-14	-16	-19	-18	-16	-19	-21	-17	-21	-22	-25	-28	-24	-24
2	-21	-18	-23	-23	-22	-21	-21	-19	-18	-15	-12	-14	-22	-26	-22	-15	-14	-14	-16	-20	-24	-25	-20	-18
3	-13	-9	-8	-11	-14	-11	-8	-10	-11	-9	-10	-12	-8	-8	-11	-10	-10	-8	-8	-10	-10	-8	-7	-7
4	-6	-5	-8	-10	-10	-11	-9	-9	-7	-6	-7	-7	-8	-7	-8	-10	-9	-9	-9	-10	-10	-8	-10	-9
5	-6	-5	-5	-2	1	5	4	2	3	5	6	12	16	12	12	8	10	11	20	25	27	30	32	34
6	31	21	20	22	28	31	30	31	24	10	13	21	21	22	25	17	11	-5	-6	-3	-4	-4	-7	-5
7	3	9	0	2	0	-8	-14	-14	-15	-11	-7	-5	-13	-14	-15	-21	-30	-32	-24	-17	-19	-18	-17	-13
8	-6	0	-3	-1	-6	-12	-12	-11	-14	-13	-8	-8	-4	0	0	-4	-11	-6	-1	-1	-2	-7	-7	-12
9	-17	-19	-15	-10	-7	-7	-9	-11	-15	-15	-12	-7	-4	-5	-7	-9	-7	-11	-14	-14	-9	-4	-5	-5
10	-7	-5	-6	-8	-12	-18	-17	-11	-12	-12	-11	-11	-7	0	4	4	2	0	-4	2	4	1	-5	-5
11	-8	-8	2	4	0	-1	6	8	10	17	22	14	0	0	-12	-21	-16	-11	-1	-13	-19	-18	-18	-19
12	-23	-26	-30	-34	-35	-23	-13	-12	-13	-11	-13	-21	-46	-51	-62	-58	-52	-53	-73	-78	-75	-66	-58	-55
13	-54	-51	-65	-65	-62	-57	-63	-55	-56	-59	-45	-38	-41	-41	-45	-51	-15	-22	-132	-151	-175	-146	-151	-193
14	-287	-338	-327	-328	-325	-297	-275	-255	-247	-237	-206	-196	-179	-172	-166	-155	-148	-138	-154	-155	-152	-137	-135	-127
15	-129	-123	-122	-114	-115	-113	-114	-115	-116	-122	-117	-120	-127	-127	-126	-125	-120	-123	-122	-120	-113	-110	-107	-105
16	-101	-96	-97	-94	-94	-96	-98	-96	-96	-94	-106	-93	-87	-88	-93	-73	-66	-70	-66	-61	-60	-34	-38	-52
17	-85	-95	-98	-91	-84	-81	-79	-79	-77	-65	-55	-72	-83	-84	-85	-82	-75	-72	-75	-78	-82	-86	-91	-94
18	-87	-66	-70	-69	-72	-74	-68	-68	-65	-68	-65	-66	-65	-64	-71	-76	-72	-67	-76	-67	-71	-72	-74	-74
19	-72	-71	-67	-70	-64	-58	-53	-55	-49	-46	-39	-41	-57	-49	-39	-57	-58	-56	-58	-57	-65	-67	-79	-84
20	-68	-59	-66	-78	-86	-97	-83	-77	-82	-77	-70	-74	-77	-74	-69	-66	-66	-66	-68	-64	-60	-61	-62	-65
21	-62	-56	-56	-51	-46	-48	-49	-53	-54	-52	-49	-48	-50	-51	-48	-48	-44	-37	-40	-43	-50	-48	-39	-33
22	-33	-38	-34	33	-33	-35	-37	-38	-47	-48	-45	-42	-39	-45	-53	-48	-44	-39	-41	-41	-41	-39	-39	-41
23	-41	-43	-40	-42	-39	-35	-33	-35	-37	-34	-31	-37	-42	-38	-40	-40	-36	-38	-42	-41	-40	-37	-39	-43
24	-46	-41	-40	-49	-58	-63	-76	-75	-72	-76	-77	-70	-64	-59	-64	-63	-77	-72	-77	-90	-81	-76	-76	-76
25	-70	-63	-58	-57	-63	-63	-58	-64	-65	-64	-57	-51	-54	-49	-50	-53	-54	-54	-57	-58	-56	-59	-67	-67
26	-67	-69	-73	-66	-56	-52	-49	-56	-57	-50	-47	-44	-48	-42	-44	-51	-53	-46	-44	-49	-54	-57	-50	-42
27	-47	-43	-45	-45	-40	-48	-74	-70	-67	-62	-61	-62	-63	-56	-53	-50	-46	-44	-44	-43	-45	-52	-59	-62
28	-58	-47	-47	-48	-54	-57	-50	-45	-43	-42	-45	-49	-43	-40	-40	-39	-42	-49	-47	-45	-43	-42	-41	-40
29	-42	-43	-40	-38	-33	-32	-44	-57	-53	-48	-43	-41	-43	-43	-47	-46	-42	-38	-43	-45	-52	-50	-43	-36
30	-30	-33	-37	-35	-33	-32	-44	-57	-50	-44	-42	-39	-34	-27	-25	-25	-22	-43	-55	-48	-43	-39	-45	-43
31	-35	-30	-27	-25	-23	-31	-35	-51	-62	-71	-67	-50	-57	-60	-58	-55	-50	-50	-53	-50	-46	-45	-52	-51

JUL



PRINCIPAL MAGNETIC STORMS

JULY 1982

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT			SC - AMPLITUDES			MAXIMUM 3 HOUR - INDEX K		RANGES			UT END	
		DAY	hr min (UT)	TYPE	D(')	H(γ)	Z(γ)	DAY (3 HOUR PERIOD)	K	D(')	H(γ)	Z(γ)	DAY	HOUR
HYB	07.6N	05	2100	..	..	..	..	06(6)	5	6	132	20	07	19
COL	64.6N	11	09--	..	..	..	..	13(8) 14(1)	9	942	5100	3340	17	16
SIT	60.0N	11	09--	..	..	..	..	13(7)	8	--	--	--	17	13
WIT	54.2N	11	0953	SC	2	19	0	11(5,6)	6	20	190	100	11	23
FRD	49.6N	11	0953	SC	- 2	45	- 8	11(5) 12(5,6)	6	27	235	76	--	--
HON	21.1N	11	0952	SC	--	33	11	11(4)	5	5	62	26	12	00
JAI	17.3N	11	0954	SC	- 2.2	41	-11		-	13	196	52	13	10
SHL	14.7N	11	0954	SC	- 1.3	43	8		-	9	176	41	13	10
UJJ	13.5N	11	0954	SC	- 1.7	45	-11		-	10	200	49	13	10
ABG	09.5N	11	0954	SC	- 1.9	36	-17	12(5)	6	11	194	43	13	10
HYB	07.6N	11	0953	SC	- 1.4	38	- 2	12(5)	6	9	198	23	13	09
ANN	01.5N	11	0954	SC	- 3	59	26		-	9	219	51	13	10
TRD	01.1S	11	0954	SC	- .7	49	55		-	5	23	--	13	10
PMG	18.6S	11	0953	SC	- .7	29	21	11(4,6)	5	5	100	50	12	00
GUA	04.0N	12	2113	..	..	..	..	13(1)	5	10	100	20	13	14
WIT	54.2N	12	10--	..	..	..	..	12(5)	6	23	230	155	13	07
GUA	04.0N	12	0620	..	..	..	..	12(5)	5	--	100	10	12	20
WIT	54.2N	13	1617	SC*	4	130	*- 4	13(7,8)	9	121	1560	760	15	02
FRD	49.6N	13	1618	SC*	..	..	..	13(8) 14(1)	9	75	980	500	16	12
HON	21.1N	13	1618	SC	4	67	26	14(1)	8	38	505	146	15	04
JAI	17.3N	13	1617	SC	- 2.1	96	-21		-	--	339	--	17	12
SHL	14.7N	13	1617	SC	- .4	118	21		-	19	325	91	17	12
UJJ	13.5N	13	1617	SC	- .9	111	-24		-	--	--	--	17	12
ABG	09.5N	13	1617	SC	- 2.0	87	-17	13(6,7) 14(1)	7	27	410	185	17	12
HYB	07.6N	13	1619	SC	- 1.0	94	- 5	13(8) 14(1)	9	23	447	63	15	24
GUA	04.0N	13	1617	SC	--	94	-27	14(1)	8	30	440	100	15	19
ANN	01.5N	13	1617	SC	- 4	111	59		-	27	471	218	17	12
TRD	01.1S	13	1617	SC	.3	82	..		-	--	--	--	17	12
PMG	18.6S	13	1617	SC	.4	83	80	13(8) 14(1)	8	18	480	240	15	16
HER	33.7S	13	1618	SC	6	21	24	13(8) 14(1)	9	85	435	552	15	06
GNA	43.2S	13	1618	SC*	- 4.5*	76	21	* 13(8) 14(1)	9	116	420	540	16	13
KGL	56.5S	13	1618	SC	14	106	40	13(7,8)	9	282	2108	1444	15	09
GUA	04.0N	16	2108	SC	--	7	- 2	16(8)	6	10	120	50	17	14
WIT	54.2N	16	1519	SC*	- 5	85	* 0	16(6,8) 17(1)	6	30	245	75	17	12
FRD	49.6N	16	1519	SC*	2	-80	- 4	16(8)	7	24	380	98	20	11
HON	21.1N	16	15--	SC	--	39	16	16(8)	6	11	110	64	17	12
HYB	07.6N	16	1520	SC	- .3	44	- 3	16(8)	6	9	106	53	17	15
GUA	04.0N	16	1519	SC	--	49	-15	16(6)	5	--	50	20	16	20
PMG	18.6S	16	1518	SC	.6	48	42	16(6,7) 17(1,4)	5	7	130	80	17	15
HER	33.7S	16	1518	SC	3	14	12	16(8) 17(1)	5	20	62	70	17	12
KGL	56.5S	16	1520	SC	11	101	23	17(1)	8	49	508	239	17	12
HYB	07.6N	17	2100	..	..	..	..	19(5)	5	9	135	29	20	11
KGL	56.5S	19	2000	..	..	..	..	20(1,2)	6	24	257	161	20	12
FRD	49.6N	23	----	..	..	..	..	24(3,6) 25(2) 26(4,6) 30(3) 31(2)	5	26	165	76	01	00
COL	64.6N	24	02--	..	..	..	..	24(3,7)	7	223	1710	790	25	18
WIT	54.2N	24	03--	..	..	..	..	24(6)	7	25	215	90	24	20
HYB	07.6N	24	0200	..	..	..	..	24(6,7) 27(2)	5	7	116	34	27	10
GUA	04.0N	24	0235	..	..	..	..	24(6)	5	10	130	30	25	16
HER	33.7S	24	15--	..	..	..	..	25(2)	5	30	91	103	25	06
KGL	56.5S	24	0200	..	..	..	..	24(6)	8	58	604	316	25	09
GUA	04.0N	26	2329	..	..	..	..	27(2)	5	10	120	20	27	17
HYB	07.6N	27	1900	..	..	..	..	30(6) 31(2,4)	5	6	131	29	31	13
HER	33.7S	28	23--	..	..	..	..	29(1)	5	19	70	55	29	10
HER	33.7S	30	14--	..	..	..	..	30(6)	5	20	91	80	31	11
GUA	04.0N	31	0321	..	..	..	..	31(4)	5	--	120	10	31	20

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU
HYDERABAD JAIPUR KERGUELEN PORT MORESBY SHILLONG SITKA TRIVANDRUM UJJAIN WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JULY 1982

PRELIMINARY REPORT ON RAPID VARIATIONS

Sudden Commencements (ssc)

11	09	53	A: COI FRD BNG; B: SOD WNG DOU MMB KNY LNP; C: WIT NGK HAD EBR TOL KAK
13	16	17	A: SOD NUR WNG WIT NGK HAD DOU MMB EBR COI TOL FRD KAK HTY KNY LNP BNG MPO GNA AMS CZT DUM; B: KGL
16	15	19	A: SOD WNG WIT NGK HAD DOU EBR COI TOL FRD BNG MPO; B: MMB KAK HTY LNP AMS KGL CZT DUM; C: KNY
30	14	22	B: WNG DOU KNY BNG; C: WIT NGK

Solar Flare Effects (sfe)

4	04	39	-	05	40	KAK KNY
7	08	29	-	..	..	BNG
8	06	47	-	07	30	KNY
9	07	32	-	08	28	MMB KAK HTY KNY LNP BNG
9	21	06	-	21	25	MMB KAK HTY KNY
10	01	57	-	02	15	KNY LNP
10	03	16	-	03	45	KNY
10	04	08	-	04	30	HTY LNP
10	08	48	-	08	50	LNP
10	23	20	-	23	35	KNY LNP
12	01	00	-	01	14	HTY
12	15	06	-	..	..	BNG
15	05	50	-	05	53	LNP
16	08	39	-	08	44	HAD BNG (ssc: A: SOD; B: WNG; C: MPO)
17	10	20	-	..	..	BNG
18	05	56	-	05	58	LNP
19	03	51	-	03	54	LNP
19	04	21	-	05	12	MMB KAK
19	05	43	-	06	15	MMB KAK HTY
20	12	52	-	13	02	WIT
22	02	09	-	02	15	LNP
22	05	10	-	05	30	MMB KAK HTY KNY
22	07	10	-	..	..	BNG
22	16	45	-	17	46	WNG
26	09	01	-	09	07	LNP
26	11	27	-	11	46	EBR
28	00	54	-	01	00	LNP
31	01	00	-	01	03	LNP

RADIO PROPAGATION QUALITY INDICES

JULY 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	6.5	6.5	6.8	5.3	6.1
2	5.8	5.5	7.1	5.3	7.1
3	7.1	7.5	9.7	9.9	9.9
4	6.8	7.5	6.7	6.6	5.9
5	7.1	8.7	9.4	6.1	7.4
6	6.1	7.7	4.9	8.2	7.5
7	4.0	5.6	6.2	6.4	7.4
8	5.4	5.9	5.2	8.4	9.0
9	5.6	4.9	4.5	2.8	2.5
10	5.1	5.8	6.5	5.5	5.8
11	5.9	5.1	3.7	4.4	6.4
12	4.3	3.7	3.1	0.7	0.0
13	0.0	1.3	1.1	1.1	1.5
14	2.2	1.8	0.0	0.0	0.0
15	4.6	3.5	4.3	5.0	7.5
16	3.9	1.9	5.2	2.2	4.7
17	4.9	3.6	4.6	2.9	6.4
18	4.2	4.1	3.4	4.6	4.4
19	5.0	4.3	5.0	4.6	4.0
20	5.0	4.0	5.6	5.4	4.4
21	6.0	5.6	5.6	6.9	7.8
22	5.5	6.0	5.6	5.1	6.6
23	4.4	6.3	7.5	3.3	4.7
24	4.1	4.3	4.6	1.4	4.7
25	5.1	5.4	4.8	4.2	3.4
26	5.7	6.0	4.5	4.9	4.0
27	4.6	5.4	4.9	5.2	4.1
28	6.1	5.6	5.2	3.7	4.0
29	6.0	6.7	4.6	6.4	5.8
30	6.7	5.5	4.6	6.7	7.5
31	6.0	4.1	6.9	6.7	5.4
MEAN	5.2	5.2	5.2	4.8	5.4

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

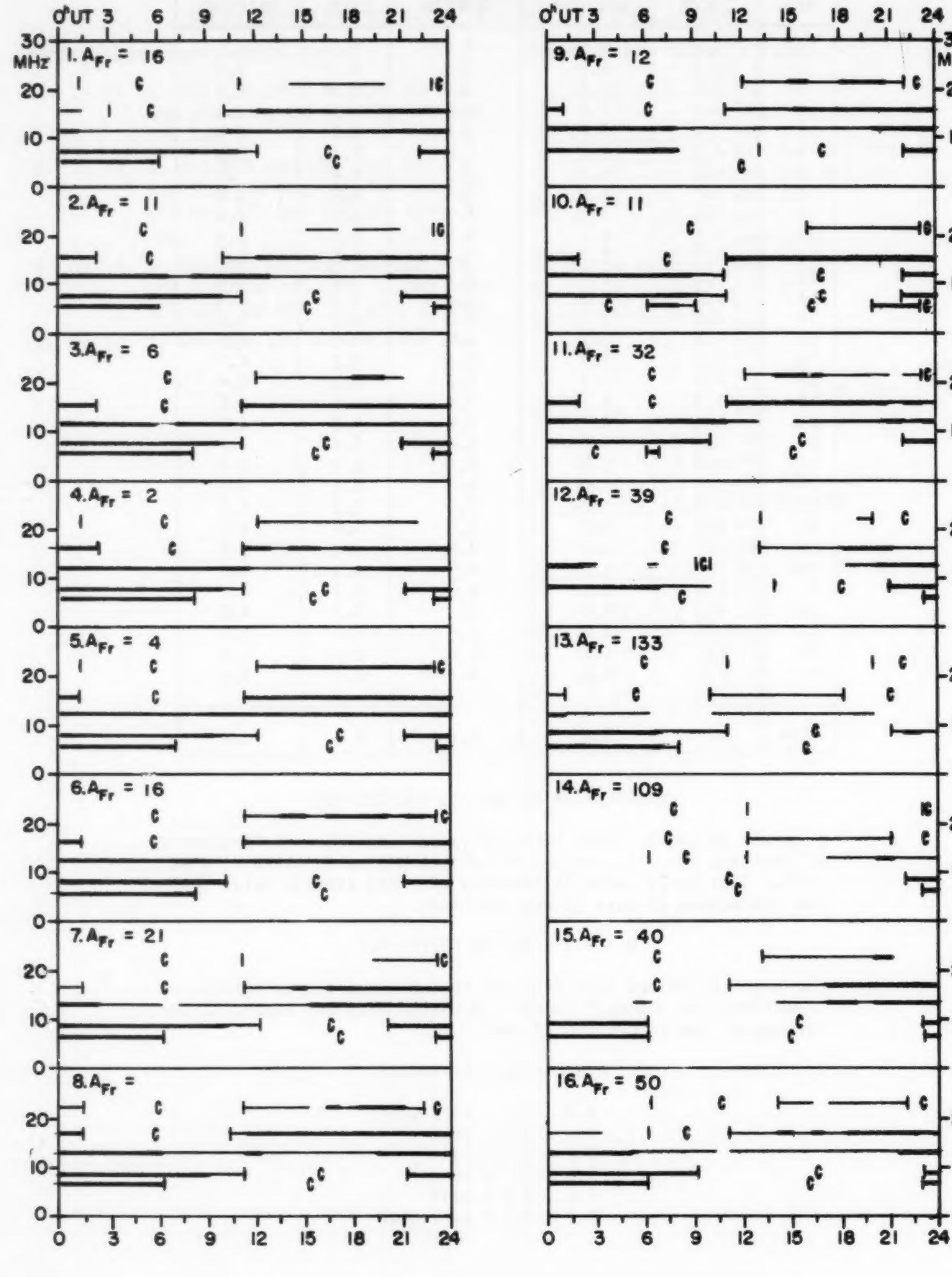
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

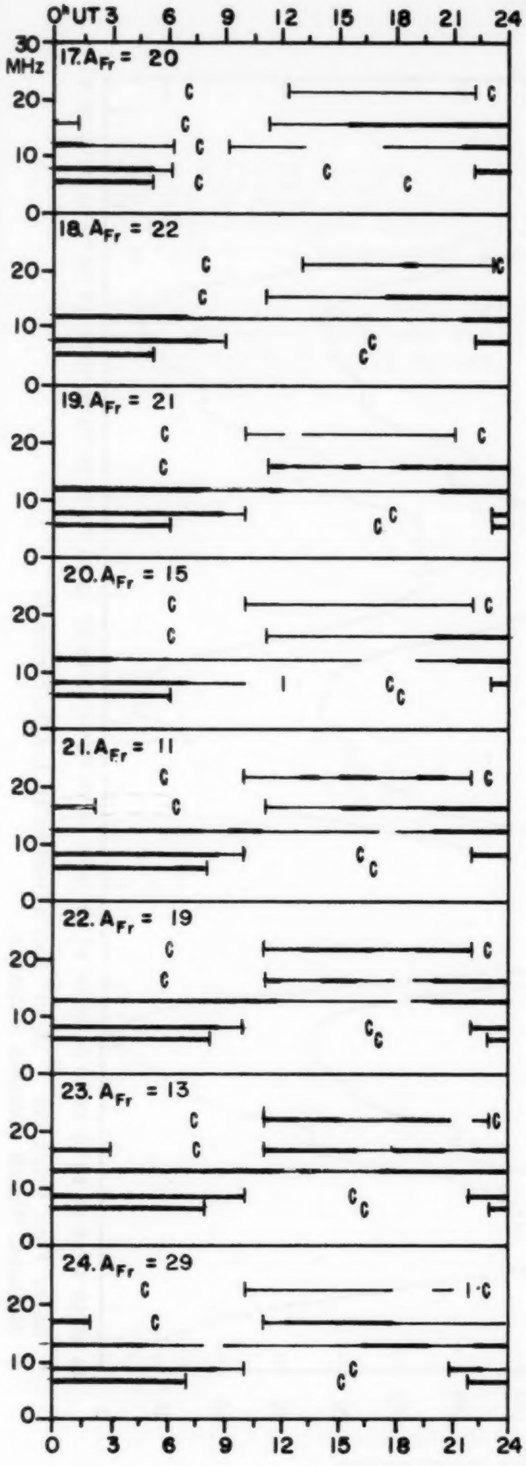
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

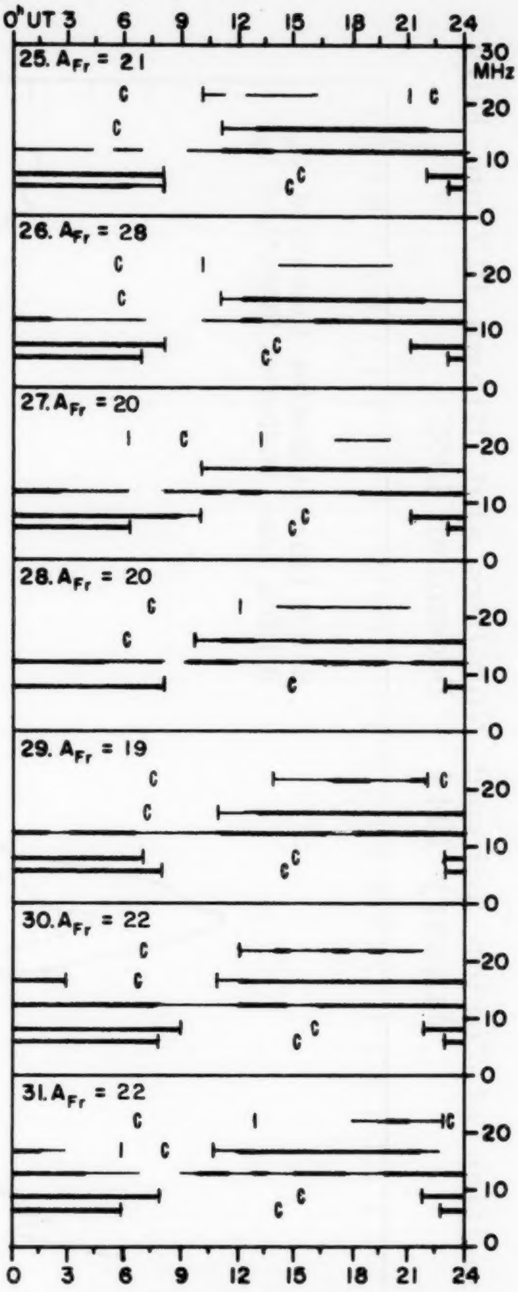
JULY 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

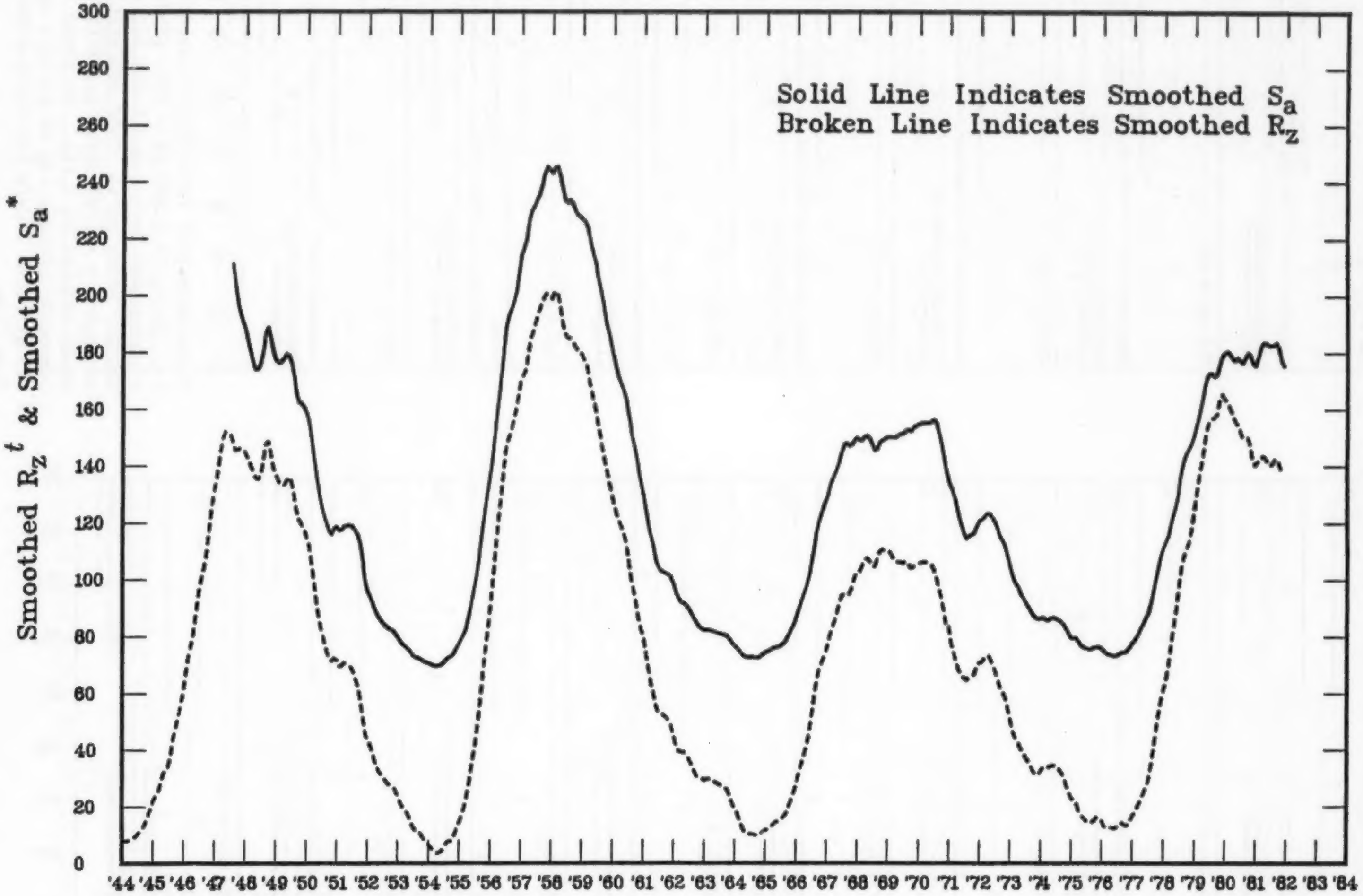
JULY 1982





Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow New York circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Superposition of Zürich Sunspot Numbers and Ottawa 10.7 cm Flux
January 1944 – December 1981



* Solar Flux Units (10^{-22} W/m^2 Hz) Adjusted to 1 A.U., Series D.
t Reduced Zürich Sunspot Numbers.

SGD 457 Part I (Prompt)

LATE DATA

Contents

	Page
Daily Solar Activity Center	
Regions of Solar Activity June 1982	166-176
Daily Calcium Plage Index June 1982	176
Big Bear Active Region List May 1982	177
Cosmic Rays Climax, Kiel, Tokyo May-June 1982	
Huancayo April-May 1982	
Neutron Monitors Daily Values	178
Chart of Variations	179-181

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18398 CMP DATE 3.3 RETURN OF REGION 18356 ROTATION 2

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	05	27	18398	S08	E85	155	200	1.0										
82	06	1	18398	S08	E20	156	2500	2.0	23167	S08	E29	147	(B)	2	M	10	1	AXX
82	06	2	18398	S08	E08	154	1800	2.0	23167	S09	E18	145	(B)	2	H		1	AXX
82	06	3	18398	S07	W05	154	1700	2.5	23170	S02	E01	149	(AF)	3	H		2	AXX
82	06	3	18398	S07	W05	154	1700	2.5	23167	S08	E02	148	(B)	4	H	10	1	BXO
82	06	4	18398	S07	W18	154	1700	2.5	23172	S05	W22	159	(AP)	3	H		1	AXX
82	06	4	18398	S07	W18	154	1700	2.5	23167	S08	W11	148	(B)	2	H		2	BXO
82	06	5	18398	S07	W32	154	1700	2.5	23167	S08	W27	150	(AP)	3	H	10	2	BXO
82	06	6	18398	S07	W43	153	1200	2.0	23167	S08	W42	152	(AP)	2	H		1	AXX
82	06	6	18398	S07	W43	153	1200	2.0	23174	S07	W50	160	(AP)	2	H		1	AXX
82	06	7	18398	S07	W59	156	1200	2.0		S11	W59				P	20	2	CSO
82	06	8	18398	S07	W73	156	900	1.5										

HALE REGION 18401 CMP DATE 4.5 RETURN OF LEADING POLARITY 18361 ROTATION 3

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	1	18401	N15	E37	139	700	2.0	23162	N18	E40	136	(AP)	2	R	10	1	AXX
82	06	2	18401	N16	E25	137	700	2.5	23162	N17	E25	138	(B)	4	H	20	3	BXO
82	06	3	18401	N17	E12	137	700	2.5	23162	N18	E12	138	(BY)	4	H	30	6	BRO
82	06	4	18401	N17	W02	138	600	2.0	23162	N19	W02	139	(AP)	3	H		1	AXX
82	06	5	18401	N17	W16	138	700	2.5										
82	06	6	18401	N17	W29	139	400	2.0										
82	06	7	18401	N17	W44	141	500	2.0										
82	06	8	18401	N17	W57	140	500	2.0										
82	06	9	18401	N18	W70	141	400	1.5										

HALE REGION 18407 CMP DATE 5.9

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	5	18407	S10	E02	120	300	2.0	23173	S09	E03	120	(B)	2	H	10	4	BXO
82	06	6	18407	S09	W12	122	500	2.0	23173	S08	W12	122	(BP)	4	H	20	8	CSO
82	06	7	18407	S10	W25	122	500	2.5	23173	S08	W26	123	(BP)	4	H	20	4	CAO
82	06	8	18407	S11	W39	122	600	2.5	23173	S09	W39	122	(B)	4	H	60	8	DAO
82	06	9	18407	S10	W52	123	600	2.5	23173	S10	W51	122	(B)	4	H	50	7	CAO
82	06	10	18407	S08	W67	121	500	2.0	23173	S08	W67	124	(B)	3	H		1	AXX
82	06	11	18407	S08	W80	120	200	2.0	23173	S08	W77	121	(B)	2	M	30	2	BXO

HALE REGION 18406 CMP DATE 6.0 RETURN OF REGION 18359 ROTATION 4

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	1	18406	S11	E50	126	1700	2.0										
82	06	2	18406	S11	E40	122	1600	2.0										
82	06	3	18406	S11	E30	119	2300	2.0										
82	06	4	18406	S10	E17	119	2000	1.5										
82	06	5	18406	S10	E03	119	2500	2.0		S09	E03				H	10	4	BXO
82	06	6	18406	S10	W10	120	2000	2.0		S09	W12				H	20	8	CSO
82	06	7	18406	S11	W24	121	2000	2.0		S08	W25				H	20	4	CAO
82	06	8	18406	S11	W40	123	2000	2.0		S09	W39				H	60	8	DAO
82	06	9	18406	S11	W50	121	1700	1.0		S09	W52				H	50	7	CAO
82	06	10	18406	S10	W63	117	1300	1.0		S08	W67				H		1	AXX
82	06	11	18406	S12	W75	115	1100	1.0		S10	W70				M	30	2	BXO

R E G I O N S O F S O L A R A C T I V I T Y

JUNE 1982

HALE REGION 18402 CMP DATE 6.5

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	1	18402	N07	E64	112	1200	3.5	23165	N09	E64	112	(B)	4	B	80	6	DSO
82	06	2	18402	N07	E51	111	1800	3.5	23165	N09	E50	113	(B)	4	H	170	13	DAO
82	06	3	18402	N07	E38	111	2000	3.5	23165	N10	E37	113	(B)	4	H	80	20	CAO
82	06	4	18402	N08	E24	112	1700	2.5	23165	N10	E23	114	(B)	4	H	20	9	BXO
82	06	5	18402	N09	E10	112	1800	2.5	23165	N10	E10	113	(B)	4	H	50	16	ERO
82	06	6	18402	N09	W03	113	1800	3.0	23165	N10	W03	113	(B)	4	H	30	14	BXO
82	06	7	18402	N10	W17	114	1900	3.5	23165	N09	W15	112	(BF)	3	H	20	17	BXO
82	06	8	18402	N09	W32	115	2000	3.5	23165	N08	W30	113	(AF)	4	H	20	6	CRO
82	06	9	18402	N10	W45	116	1700	3.0										
82	06	10	18402	N11	W60	114	1200	3.0										
82	06	11	18402	N11	W75	115	700	2.5										
82	06	12	18402	N17	W80	109	300	1.0		N15	W78				H	10	2	AXX

HALE REGION 18403 CMP DATE 6.8 RETURN OF REGION 18362 ROTATION 2

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	1	18403	N12	E67	109	400	1.0	23166	N14	E67	109	(AP)	4	B	140	1	HSX
82	06	2	18403	N12	E56	106	300	1.5	23166	N13	E54	109	(AP)	4	H	80	1	HSX
82	06	3	18403	N12	E43	106	300	1.0	23166	N14	E41	109	(AP)	5	H	80	1	HSX
82	06	4	18403	N12	E28	108	300	1.5	23166	N14	E28	109	(AP)	5	H	70	1	HSX
82	06	5	18403	N12	E14	108	300	1.5	23166	N14	E14	109	(AP)	4	H	100	1	HSX
82	06	6	18403	N13	E01	109	200	1.5	23166	N13	E01	109	(AP)	4	H	60	1	HSX
82	06	7	18403	N13	W13	110	300	1.5	23166	N13	W11	108	(BP)	4	H	40	1	HSX
82	06	8	18403	N13	W26	109	300	1.5	23166	N13	W25	108	(AP)	5	H	70	1	HSX
82	06	9	18403	N13	W39	110	300	1.5	23166	N13	W39	110	(BF)	5	H	60	3	CSO
82	06	10	18403	N14	W54	108	300	1.0	23166	N15	W50	107	(AP)	5	H	30	1	HSX
82	06	11	18403	N14	W66	106	400	1.0	23166	N15	W62	106	(AP)	4	H	20	1	HSX
82	06	12	18403	N22	W79	108	300	1.0	23166	N14	W68	99	(AP)	2	H	10	2	AXX

HALE REGION 18404 CMP DATE 7.1

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	1	18404	N18	E70	106	800	2.5	23168	N20	E70	106	(B)	3	B	40	4	CSO
82	06	2	18404	N18	E58	104	1100	2.5	23168	N20	E58	105	(B)	3	H	50	6	CRO
82	06	3	18404	N18	E45	104	600	3.0	23168	N20	E42	108	(BP)	4	H	50	4	CSO
82	06	4	18404	N20	E33	103	1000	3.0	23168	N21	E31	106	(B)	4	H	60	8	CSO
82	06	5	18404	N20	E17	105	1200	2.5	23168	N21	E18	105	(B)	4	H	50	12	CSO
82	06	6	18404	N22	E05	105	1500	2.0	23168	N20	E02	108	(AP)	3	H	30	9	CAO
82	06	7	18404	N23	W07	104	1500	2.0	23168	N20	W10	107	(AP)	4	H	10	4	CSO
82	06	8	18404	N23	W20	103	1300	2.0	23168	N20	W24	107	(BP)	3	H	10	3	AXX
82	06	9	18404	N24	W33	104	1500	2.0	23168	N20	W37	108	(BP)	4	H		1	AXX
82	06	10	18404	N25	W47	101	1200	2.5	23168	N21	W51	108	(AP)	3	H		1	AXX
82	06	11	18404	N25	W60	100	1200	2.5		N21	W56				M	10	1	AXX
82	06	12	18404	N29	W72	101	800	1.0										

HALE REGION 18405 CMP DATE 8.5

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	2	18405	S10	E80	82	3500	3.5	23169	S08	E80	83	(D)	4	H	780	11	EKI
82	06	3	18405	S10	E70	79	4900	3.5	23169	S08	E67	83	(D)	5	H	980	28	EKC
82	06	4	18405	S10	E53	83	5200	4.0	23169	S08	E53	84	(D)	6	H	930	44	EKC
82	06	5	18405	S10	E49	73	5500	3.5	23169	S08	E40	83	(D)	5	H	1160	58	FKC
82	06	6	18405	S10	E25	85	5400	4.5	23169	S09	E26	84	(D)	6	H	1180	54	EKI
82	06	7	18405	S10	E10	87	5800	4.0	23169	S09	E13	84	(D)	6	H	1160	74	EKI
82	06	8	18405	S10	W02	85	6000	4.0	23169	S10	W02	85	(D)	6	H	1050	52	EKI
82	06	9	18405	S08	W15	86	6000	3.5	23169	S09	W15	86	(D)	6	H	1130	70	EKI
82	06	10	18405	S08	W30	84	5800	3.5	23169	S08	W27	84	(D)	6	H	920	62	EKC
82	06	11	18405	S08	W45	85	6300	3.5	23169	S09	W42	86	(D)	6	H	620	55	EKC
82	06	12	18405	S07	W58	87	5800	4.0	23169	S10	W55	86	(D)	5	H	630	15	EKI
82	06	13	18405	S05	W71	88	5000	4.0	23169	S10	W68	86	(D)	5	H	830	17	EKI

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18405 (CONT) CMP DATE 8.5

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	14	18405	S11	W82	83	2000	3.0	23169	S11	W80	85	(BY)	3	H	250	5	CKI

HALE REGION 18418 CMP DATE 10.9

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	11	18418	S27	W13	53	200	1.5	23184	S27	W07	51	(AF)	2	H		1	AXX
82	06	12	18418	S24	W26	55	200	1.5		S26	W19				R	10	1	AXX
82	06	13	18418	S23	W38	55	300	1.0										
82	06	14	18418	S25	W51	52	300	1.5										
82	06	15	18418	S25	W60	51	200	1.0										

HALE REGION 18417 CMP DATE 11.0

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	10	18417	S19	E01	53	100	1.0										
82	06	11	18417	S18	W10	50	200	1.5	23183	S18	W07	51	(AP)	2				
82	06	12	18417	S16	W23	52	200	1.0		S18	W23				P	10	1	AXX
82	06	13	18417	S14	W35	52	100	1.0										
82	06	14	18417	S15	W48	49	100	1.0										
82	06	15	18417	S14	W59	50	100	1.0										

HALE REGION 18424 CMP DATE 11.0

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	14	18424	S11	W52	53	200	2.5										
82	06	15	18424	S11	W62	53	100	1.5										

HALE REGION 18419 CMP DATE 11.5

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	11	18419	N14	W06	46	300	1.5	23185	N13	W03	47	(B)	3	H		2	BXO
82	06	12	18419	N14	W18	47	300	1.5	23185	N12	W18	49	(BP)	4	H	10	4	AXX
82	06	13	18419	N17	W30	47	300	1.5	23185	N12	W31	49	(AP)	3	H		1	AXX
82	06	14	18419	N15	W45	46	300	1.5										
82	06	15	18419	N15	W57	48	200	1.5										
82	06	16	18419	N14	W73	47	100	1.0										

HALE REGION 18408 CMP DATE 11.7

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	06	5	18408	N14	E80	42	200	1.0										
82	06	6	18408	N15	E68	42	200	1.0										
82	06	7	18408	N15	E55	42	300	1.0		N10	E60				H		1	AXX
82	06	8	18408	N14	E40	43	400	1.0		N10	E46				H	10	3	BXO
82	06	9	18408	N14	E27	44	300	1.0		N10	E32				H	10	2	BXO
82	06	10	18408	N14	E10	44	200	1.0										
82	06	11	18408	N16	W03	43	300	1.0		N13	W03				H		2	BXO

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18411 CMP DATE 12.0 RETURN OF REGION 18370 ROTATION 5

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	7	18411	N09 E60	37	300	3.5	23177	N10 E60	37	(B)	2	H		1	AXX
82	06	8	18411	N10 E46	37	300	2.5	23177	N10 E45	38	(B)	4	H	10	3	BXO
82	06	9	18411	N10 E33	38	400	2.0	23177	N10 E32	39	(B)	4	H	10	2	BXO
82	06	10	18411	N10 E14	40	400	2.0									
82	06	12	18411	N12 W10	39	300	1.5		N12 W16				H	10	4	AXX
82	06	13	18411	N13 W23	40	300	1.0									
82	06	14	18411	N11 W39	40	300	1.5									
82	06	15	18411	N10 W50	41	200	1.0									
82	06	16	18411	N08 W66	40	100	1.0		N03 W58				M	90	1	HSX

HALE REGION 18409 CMP DATE 12.3

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	6	18409	N02 E78	32	300	1.0	23175	N02 E79	31	(AP)	3	H	70	1	HSX
82	06	7	18409	N01 E65	32	500	2.0	23175	N02 E66	31	(AP)	4	H	50	1	HSX
82	06	8	18409	N01 E52	31	300	2.0	23175	N02 E51	32	(AP)	5	H	50	1	HSX
82	06	9	18409	N01 E40	31	300	1.5	23175	N02 E39	32	(AP)	5	H	60	1	HSX
82	06	10	18409	S01 E23	31	200	1.0	23175	N02 E26	31	(AP)	4	H	100	1	HSX
82	06	11	18409	N01 E08	32	400	1.5	23175	N02 E13	31	(AP)	5	H	80	1	HSX
82	06	12	18409	N02 W06	35	400	2.0	23175	N02 W01	32	(AP)	4	H	40	1	HSX
82	06	13	18409	N03 W19	36	400	2.0	23175	N02 W14	32	(AP)	5	H	60	1	HSX
82	06	14	18409	N02 W35	36	400	2.5	23175	N02 W27	32	(AP)	5	H	90	1	HSX
82	06	15	18409	N02 W46	37	500	2.0	23175	N02 W41	32	(AP)	5	H	40	1	HSX
82	06	16	18409	N02 W62	36	500	2.0	23175	N02 W55	33	(AP)	5	H	90	1	HSX
82	06	17	18409	N03 W78	41	300	1.0	23175	N02 W67	32	(AP)	4	H	60	1	HSX

HALE REGION 18410 CMP DATE 12.4

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	6	18410	S18 E80	30	500	1.5		S19 E73				M	70	5	CRO
82	06	7	18410	S18 E68	29	1000	3.0	23176	S19 E65	32	(B)	4	H	50	8	CSO
82	06	8	18410	S18 E55	28	1000	3.5	23176	S19 E50	33	(B)	5	H	300	9	DAO
82	06	9	18410	S19 E42	29	1800	3.0	23176	S19 E38	33	(B)	5	H	390	14	DAO
82	06	10	18410	S19 E20	34	2500	3.5	23176	S18 E25	32	(D)	5	H	570	25	EKO
82	06	11	18410	S19 E08	32	2800	3.0	23176	S18 E12	32	(D)	5	H	660	28	EKI
82	06	12	18410	S18 W05	34	2800	3.5	23176	S19 W02	33	(D)	5	R	540	17	EKI
82	06	13	18410	S17 W18	35	2900	3.5	23176	S18 W14	32	(D)	5	H	600	12	DHI
82	06	14	18410	S18 W31	32	2700	3.5	23176	S18 W28	33	(D)	5	H	400	12	DAO
82	06	15	18410	S18 W41	32	2400	3.0	23176	S18 W40	31	(B)	5	H	340	7	DAO
82	06	16	18410	S18 W55	29	1800	2.5	23176	S18 W54	32	(B)	5	H	340	8	DSO
82	06	17	18410	S17 W63	26	1600	2.5	23176	S18 W64	29	(B)	5	H	330	3	CSO
82	06	18	18410	S17 W73	24	1100	2.5		S17 W75				H	150	8	EAI
82	06	19	18410					23176	S20 W80	19	AF	2	H	40	1	HSX

HALE REGION 18427 CMP DATE 13.6

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	17	18427	S16 W55	18	300	2.5		S18 W56				H		1	AXX
82	06	18	18427	S17 W62	13	200	1.5		S18 W67				R	50	4	DAO

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18412 CMP DATE 13.9 RETURN OF REGION 18373 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	8	18412	S02	E73	10	400	1.5	23178	S02	E70	13	(AP)	4	H	60	1	HSX
82	06	9	18412	S03	E60	11	500	1.5	23178	S03	E57	14	(AP)	5	H	40	1	HSX
82	06	10	18412	S03	E41	13	400	2.0	23178	S02	E45	12	(AP)	4	H	60	1	HSX
82	06	11	18412	S03	E28	12	800	2.0	23178	S03	E31	13	(BF)	5	H	80	5	CSO
82	06	12	18412	S02	E15	14	1000	2.0	23178	S03	E17	14	(BP)	5	H	40	2	CSO
82	06	13	18412	S02	E03	14	800	1.5	23178	S03	E04	14	(AP)	4	H	20	2	HAX
82	06	14	18412	S03	W13	14	800	2.0	23178	S03	W08	13	(AP)	4	H	40	3	HSX
82	06	15	18412	S03	W23	14	500	2.0	23178	S03	W22	13	(AP)	4	H	20	2	HSX
82	06	16	18412	S03	W38	12	600	2.0	23178	S03	W36	14	(AP)	4	H	10	1	AXX
82	06	17	18412	S03	W50	13	600	2.0	23178	S03	W40	5	(AP)	3	H		1	AXX
82	06	18	18412	S03	W62	13	400	1.5										
82	06	19	18412	S03	W75	13	400	1.0										

HALE REGION 18429 CMP DATE 14.0

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	16	18429	N05	W38	12	200	2.0		N04	W30				L		1	AXX
82	06	17	18429	N05	W52	15	200	1.0		N02	W59				L	70	1	HSX

HALE REGION 18413 CMP DATE 14.4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	8	18413	S15	E80	3	600	1.0										
82	06	9	18413	S14	E67	4	600	2.0		S15	E73				M	90	2	CSO
82	06	10	18413	S15	E48	6	600	2.5										
82	06	11	18413	S15	E35	5	600	2.5										
82	06	12	18413	S16	E22	7	500	2.0										
82	06	13	18413	S16	E08	9	600	2.0										
82	06	14	18413	S15	W07	8	500	2.0										
82	06	15	18413	S14	W17	8	300	1.5		S13	W07				M	30	7	CRO
82	06	16	18413	S14	W32	6	300	1.0										
82	06	17	18413	S12	W44	7	200	1.0										

HALE REGION 18425 CMP DATE 14.7

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	14	18425	N28	W03	4	100	1.5										
82	06	15	18425	N27	W13	4	100	1.5										

HALE REGION 18415 CMP DATE 15.2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	8	18415						23179	N19	E80	3	(AP)	3	H	30	3	CSO
82	06	9	18415	N18	E75	356	900	3.0	23179	N19	E69	2	(BP)	4	H	70	5	CSO
82	06	10	18415	N18	E57	357	1200	3.5	23179	N19	E56	1	(B)	4	H	280	10	CAO
82	06	11	18415	N18	E45	355	2200	3.5	23179	N19	E43	1	(BF)	4	H	170	8	CSO
82	06	12	18415	N18	E32	357	2500	3.5	23179	N19	E30	1	(B)	4	H	140	11	DSO
82	06	13	18415	N18	E20	357	2400	3.5	23179	N19	E18		(BP)	4	H	60	11	CAO
82	06	14	18415	N20	E04	357	2200	3.0	23179	N19	E05		(AP)	4	H	10	4	AXX
82	06	15	18415	N20	W07	358	2100	3.0	23179	N19	W09		(BP)	4	H	10	2	AXX
82	06	16	18415	N21	W22	356	2000	3.0	23179	N18	W22		(AP)	3	H	10	2	AXX
82	06	17	18415	N21	W34	357	1600	3.0		N19	W28				L		2	AXX
82	06	18	18415	N22	W46	357	1500	3.0										
82	06	19	18415	N23	W59	357	1300	2.5										
82	06	20	18415	N21	W72	356	1300	2.0										

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18414 CMP DATE 15.3

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	9	18414	S13	E77	354	700	2.0	23181	S14	E79		(B)	3				
82	06	10	18414	S14	E60	354	700	2.5	23181	S14	E65	352	(BF)	4	H	40	6	CSO
82	06	11	18414	S14	E47	353	1400	3.0	23181	S14	E51	353	(BF)	5	H	100	9	CSO
82	06	12	18414	S14	E34	355	1400	3.0	23181	S12	E38	353	(BF)	4	H	50	6	DAO
82	06	13	18414	S14	E20	357	1400	3.0	23181	S13	E26	352	(BF)	4	H	60	6	CAO
82	06	14	18414	S13	E06	355	1400	3.0		S12	E13				H	40	8	DAO
82	06	15	18414	S13	W05	356	1600	3.0	23181	S13	W01	352	(BF)	3	H	40	5	CAO
82	06	16	18414	S12	W19	353	1400	3.0	23181	S13	W14	352	(B)	3	H	10	3	BXO
82	06	17	18414	S12	W31	354	1200	2.5										
82	06	18	18414	S12	W44	355	1100	2.5										
82	06	19	18414	S12	W57	355	1102	5.0										
82	06	20	18414	S12	W70	354	1100	2.5										

HALE REGION 18432 CMP DATE 16.1

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	18	18432	N02	W34	345	300	2.5		N07	W34				M	260	5	CHO
82	06	19	18432	N03	W48	346	300	1.5	23191	N02	W49	348	(AP)	3	H		2	AXX
82	06	20	18432	N02	W62	346	200	1.5		N01	W53				L		1	AXX

HALE REGION 18423 CMP DATE 16.6

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	12	18423	S25	E47	342	200	2.5	23187	S18	E44	347	(B)	2	H	50	6	DAO
82	06	13	18423	S25	E35	342	400	2.5	23187	S23	E37	341	(B)	3	H	10	2	CRO
82	06	14	18423	S23	E20	341	500	3.0	23187	S23	E24	341	(B)	3	H	10	3	BXO
82	06	15	18423	S23	E10	341	500	2.5	23187	S22	E10	341	(AP)	2	M		1	AXX
82	06	16	18423	S23	W04	338	500	2.0										
82	06	17	18423	S23	W17	340	300	2.0										
82	06	18	18423	S23	W29	340	300	2.0										

HALE REGION 18416 CMP DATE 16.7

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	9	18416						23182	N08	E88	343	(AP)	2	M	460	1	HHX
82	06	10	18416	N06	E75	339	1200	2.5	23182	N08	E77	340	(B)	4	H	390	3	EHO
82	06	11	18416	N06	E62	338	1500	3.0	23182	N07	E63	341	(B)	5	H	430	6	DHO
82	06	12	18416	N06	E49	340	2000	3.0	23182	N08	E50	341	(B)	5	H	300	11	DHO
82	06	13	18416	N06	E36	341	2000	3.0	23182	N08	E37	341	(B)	5	H	340	13	DHO
82	06	14	18416	N07	E20	341	2300	3.0	23182	N07	E24	341	(B)	5	H	340	15	DSO
82	06	15	18416	N09	E10	341	2300	3.0	23182	N08	E10	341	(B)	5	R	270	8	CKO
82	06	16	18416	N09	W03	337	1800	3.0	23182	N08	W03	341	(BP)	5	H	230	8	CSO
82	06	17	18416	N09	W18	341	2000	3.0	23182	N07	W17	342	(BP)	4	H	220	4	CSO
82	06	18	18416	N09	W30	341	1900	3.0		N08	W30				H	220	8	CHO
82	06	19	18416	N08	W42	340	1300	3.0	23182	N07	W45	344	(AP)	4	H	150	3	CSO
82	06	20	18416	N07	W55	339	1400	3.0	23182	N07	W61	346	(AP)	5	H	140	6	CAO
82	06	21	18416	N09	W70	338	1100	2.0	23182	N07	W71	343	(AP)	4	H	180	4	CSO
82	06	22	18416	N09	W82	340	300	1.0	23182	N07	W83	342	AP	2	R	130	1	HHX

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18420 CMP DATE 16.9 RETURN OF REGION 18377 ROTATION 5

			CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	11	18420	S14	E68	332	600	1.5		S14	E58				M	100	7	DAO
82	06	12	18420	S14	E53	336	700	1.5		S14	E46				M	90	8	DSO
82	06	13	18420	S14	E40	337	700	1.0		S14	E33				M	90	13	DSO
82	06	14	18420	S12	E24	337	1100	1.5		S13	E18				L	60	9	CAO
82	06	15	18420	S09	E14	337	800	1.5		S08	E12				H	240	10	CSO
82	06	16	18420	S10	W00	334	700	1.5		S09	W03				B	210	9	CHO
82	06	17	18420	S12	W12	335	700	1.5		S15	W20				L	10	3	BXO
82	06	18	18420	S12	W23	334	800	2.0										
82	06	19	18420	S12	W36	334	900	2.0										
82	06	20	18420	S13	W49	333	900	2.0										
82	06	21	18420	S12	W67	335	700	1.0		S08	W77				M	10	1	AXX

HALE REGION 18436 CMP DATE 17.0

			CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	21	18436	S07	W65	333	400	2.0	23192	S06	W71	343	X	2	B	20	2	AXX

HALE REGION 18421 CMP DATE 18.3 RETURN PARTS OF 18378, 18379, 18386 ROTATIONS 4 AND 3

			CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	11	18421	N15	E70	330	1800	2.5										
82	06	12	18421	N15	E65	324	2700	2.5										
82	06	13	18421	N15	E55	322	2800	2.0										
82	06	14	18421	N19	E43	318	3300	2.5										
82	06	15	18421	N20	E30	321	2700	2.5										
82	06	16	18421	N20	E18	316	2700	2.5										
82	06	17	18421	N19	E07	316	2300	2.0										
82	06	18	18421	N20	W05	316	2800	2.5										
82	06	19	18421	N20	W20	318	2500	2.5										
82	06	20	18421	N19	W34	318	2100	2.5										
82	06	21	18421	N20	W48	316	2500	2.5										
82	06	22	18421	N20	W61	319	2000	2.0										

HALE REGION 18422 CMP DATE 18.8 NEW, IN LOCATION OF 18382 AND 18383

			CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	11	18422	N10	E85	315	1000	2.5	23186	N13	E88	316	(AP)	2	H	190	1	HHX
82	06	12	18422	N08	E78	311	10000	4.0	23186	N12	E77	314	(D)	5	H	2000	11	DKC
82	06	13	18422	N10	E67	310	10000	4.0	23186	N12	E65	313	(D)	5	H	3050	23	FKC
82	06	14	18422	N13	E52	309	11000	4.0	23186	N12	E50	315	(D)	5	H	3120	53	FKC
82	06	15	18422	N14	E40	311	10500	4.0	23186	N12	E37	314	(D)	5	H	3000	59	FKC
82	06	16	18422	N15	E28	306	11200	4.0	23186	N12	E26	312	(D)	6	H	2300	81	FKC
82	06	17	18422	N15	E12	311	11500	4.0	23186	N12	E12		(D)	5				
82	06	18	18422	N15	E01	310	11800	4.0		N13	E07				L	2110	60	EKC
82	06	19	18422	N17	W11	309	11000	3.5	23186	N12	W16	315	(D)	5	H	2050	46	FKC
82	06	20	18422	N17	W26	310	12000	4.0	23186	N12	W30	315	(BY)	5	H	1660	73	FKC
82	06	21	18422	N17	W32	300	10800	3.5	23186	N12	W45	317	(D)	5	H	1390	44	EKI
82	06	22	18422	N20	W50	308	9800	3.5	23186	N12	W58	317	(D)	5	H	1000	20	EKC
82	06	23	18422	N17	W62	308	9000	3.5	23186	N12	W72	318	(D)	5	H	930	10	DKI

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18428 CMP DATE 20.4 RETURN OF REGION 18387 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	14	18428	N25	E78	283	300	1.5										
82	06	15	18428	N24	E64	287	200	1.5										
82	06	16	18428	N25	E50	284	200	2.0										
82	06	17	18428	N24	E37	286	100	1.5										
82	06	18	18428	N23	E24	287	100	1.5										
82	06	19	18428	N23	E10	288	100	1.5										

HALE REGION 18426 CMP DATE 21.2 RETURN OF REGION 18392 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	14	18426	S19	E80	281	1200	3.0	23188	S18	E80	285	(AP)	3	H	250	1	HHX
82	06	15	18426	S18	E68	283	1300	2.5	23188	S18	E69	282	(D)	5	H	250	6	CKI
82	06	16	18426	S18	E55	279	1200	2.5	23188	S18	E54	284	(BF)	5	H	150	7	CSO
82	06	17	18426	S20	E43	280	1600	2.5	23188	S19	E40	285	(B)	5	H	150	4	CSO
82	06	18	18426	S19	E32	279	1600	2.5		S19	E25				H	200	5	CSO
82	06	19	18426	S18	E17	281	1700	2.5	23188	S18	E15	284	(AP)	5	H	140	2	HKX
82	06	20	18426	S18	E06	278	1900	2.5	23188	S18	E02	283	(AP)	5	H	180	7	CSO
82	06	21	18426	S20	W07	275	1600	2.5	23188	S19	W13	285	(AP)	4	H	170	2	HSX
82	06	22	18426	S19	W21	279	1900	3.0	23188	S18	W25	284	(AP)	5	H	210	5	CSO
82	06	23	18426	S19	W34	280	1500	2.5	23188	S19	W38	284	(BP)	4	H	90	5	CSO
82	06	24	18426						23188	S19	W54	284	(AP)	5	H	60	3	CAO
82	06	25	18426						23188	S19	W66	286	(AP)	4	H	90	1	HAX
82	06	26	18426	S20	W76	282	600	2.0	23188	S19	W78	284	AP	2	H	70	1	HSX

HALE REGION 18430 CMP DATE 21.5

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	16	18430	N17	E67	267	400	3.0	23189	N17	E67	271	(AF)	3	H		1	AXX
82	06	17	18430	N16	E48	275	900	4.0	23189	N16	E51	274	(B)	4	H	80	9	CRO
82	06	18	18430	N16	E36	275	2500	3.5		N15	E35				H	210	23	EAI
82	06	19	18430	N16	E22	276	2500	4.0	23189	N17	E21	278	(BY)	4	H	580	38	EAI
82	06	20	18430	N17	E07	277	3500	4.0	23189	N16	E06	279	(D)	5	H	1250	56	EKI
82	06	21	18430	N16	W05	273	3500	4.0	23189	N16	W07	279	(D)	5	H	1040	66	FAI
82	06	22	18430	N16	W20	278	4500	4.0	23189	N16	W19	278	(D)	5	H	860	75	FKI
82	06	23	18430	N16	W32	278	4700	3.5	23189	N16	W33	279	(D)	5	H	1000	51	FKC
82	06	24	18430						23189	N16	W48	278	(D)	4	H	1050	41	FKI
82	06	25	18430						23189	N15	W59	279	(D)	4	H	940	27	EKI
82	06	26	18430	N15	W75	281	1800	3.0	23189	N15	W75	281	(B)	4	H	560	23	EKI
82	06	27	18430	N17	W88	281	500	1.5		N16	W86				H		2	DSO

HALE REGION 18434 CMP DATE 21.7

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	20	18434	N24	E07	277	400	2.5		N23	E10				H	30	5	CSO
82	06	21	18434	N24	W03	271	200	2.0		N23	W03				H	20	6	BXO
82	06	22	18434	N23	W17	275	400	2.5										
82	06	23	18434	N24	W30	276	200	2.0		N24	W31				H		1	AXX

R E G I O N S O F S O L A R A C T I V I T Y

JUNE 1982

HALE REGION 18441 CMP DATE 22.1

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
				CALCIUM PLAGE DATA				SUNSPOT DATA								
82	06	23	18441	S23 W20	266	200	2.0		S22 W22				B		1	AXX
82	06	25	18441					23196	S24 W46	266	(B)	3	H	20	2	CSO

HALE REGION 18445 CMP DATE 22.4

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
				CALCIUM PLAGE DATA				SUNSPOT DATA								
82	06	25	18445					23195	N12 W34	254	(AF)	3	H	10	2	BXO
82	06	26	18445	N14 W57	263	500	2.0	23195	N12 W51	257	(B)	3	H		2	BXO
82	06	27	18445	N13 W66	259	400	2.0									
82	06	28	18445	N13 W80	259	200	2.0									

HALE REGION 18433 CMP DATE 22.5

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
				CALCIUM PLAGE DATA				SUNSPOT DATA								
82	06	19	18433	S20 E38	260	100	1.5									
82	06	20	18433	S20 E24	260	100	1.0									
82	06	21	18433	S21 E13	255	200	2.0									
82	06	22	18433	S20 W03	261	100	1.0									
82	06	23	18433	S21 W16	262	200	1.5									

HALE REGION 18437 CMP DATE 22.5

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
				CALCIUM PLAGE DATA				SUNSPOT DATA								
82	06	21	18437	S03 E08	260	100	1.0		S01 E01				M	20	3	CRO
82	06	22	18437	S03 W09	267	400	3.5	23193	S02 W08	267	(B)	4	H	40	6	CSO
82	06	23	18437	S02 W23	269	900	3.0	23193	S02 W22	268	(B)	5	H	230	7	DSO
82	06	24	18437					23193	S02 W38	268	(B)	5	H	220	9	DSI
82	06	25	18437					23193	S02 W49	269	(B)	4	H	350	8	DAO
82	06	26	18437	S02 W72	278	900	3.0	23193	S02 W63	269	(B)	4	H	150	4	DSO
82	06	27	18437	S03 W83	276	300	2.0	23193	S02 W85	279	AP	3	H	150	1	HSX

HALE REGION 18431 CMP DATE 23.9

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
				CALCIUM PLAGE DATA				SUNSPOT DATA								
82	06	17	18431	N14 E81	242	500	2.0	23190	N14 E80	245	(AP)	3	H	10	2	BXO
82	06	18	18431	N15 E69	242	1100	2.5		N15 E67				H	70	3	CAO
82	06	19	18431	N15 E56	242	1000	3.5	23190	N16 E53	246	(B)	4	H	110	8	DAO
82	06	20	18431	N17 E42	242	1400	3.5	23190	N16 E40	245	(BP)	4	H	570	16	CSO
82	06	21	18431	N16 E32	236	1300	3.5	23190	N16 E31	241	(B)	5	H	210	18	CSO
82	06	22	18431	N16 E16	242	1900	3.5	23190	N16 E16	243	(BY)	4	H	270	20	DAI
82	06	23	18431	N16 E04	242	2400	3.5	23190	N16 E04	242	(BY)	4	B	210	17	ESI
82	06	24	18431					23190	N16 W10	240	(B)	5	H	140	12	EAO
82	06	25	18431					23190	N16 W21	241	(B)	5	H	80	9	EAO
82	06	26	18431	N16 W40	246	1800	3.0	23190	N15 W39	245	(B)	3	H	70	5	DAO
82	06	27	18431	N16 W52	245	1500	2.5	23190	N15 W49	243	(BP)	4	H	20	3	AXX
82	06	28	18431	N16 W65	244	800	2.5	23190	N15 W63	243	(AP)	3	H	10	1	AXX
82	06	29	18431						N15 W79				H		1	AXX

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18455 CMP DATE 24.5

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	28	18455	N05	W56	235	200	1.0										

HALE REGION 18440 CMP DATE 25.3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	22	18440	N11	E34	224	100	1.0										
82	06	23	18440	N09	E22	224	100	1.0										

HALE REGION 18435 CMP DATE 25.9 RETURN OF REGION 18396 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	20	18435	S03	E74	210	1200	2.0										
82	06	21	18435	N03	E65	203	1000	1.5										
82	06	22	18435	S04	E47	211	1400	2.0										
82	06	23	18435	S06	E34	212	1300	2.5										
82	06	26	18435	S05	W10	216	1100	2.0										
82	06	27	18435	S04	W19	212	1200	2.0										
82	06	28	18435	S04	W31	210	1700	2.0										
82	07	1	18435	S03	W72	212	900	1.5										

HALE REGION 18438 CMP DATE 26.8

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	21	18438	S25	E75	193	400	1.0										
82	06	22	18438	S25	E57	201	300	1.5										
82	06	23	18438	S27	E45	201	500	2.0										
82	06	26	18438	S27	E02	204	400	2.0										
82	06	27	18438	S26	W06	199	300	2.0										
82	06	28	18438	S26	W19	198	500	2.0										
82	07	1	18438	S26	W63	203	400	1.0										
82	07	2	18438	S27	W76	203	300	1.0										

HALE REGION 18439 CMP DATE 27.4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	21	18439	S10	E80	188	200	1.0										
82	06	22	18439	S08	E65	193	300	2.0										
82	06	23	18439	S08	E52	194	300	2.0										
82	06	26	18439	S08	E06	200	200	2.5										
82	06	27	18439	S09	W04	197	200	2.0										
82	06	28	18439	S08	W17	196	300	2.0										

HALE REGION 18443 CMP DATE 28.7

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	23	18443	N05	E70	176	300	3.0	23194	N07	E68	178	X	2	H		1	AXX
82	06	24	18443						23194	N07	E52	178	B	3	H	20	5	BXO
82	06	25	18443						23194	N07	E41	179	(B)	5	H	30	6	CSO
82	06	26	18443	N06	E23	183	600	3.0	23194	N07	E28	178	(B)	4	H	30	7	BXO
82	06	27	18443	N07	E13	180	700	3.0		N07	E14				P	10	4	AXX

REGIONS OF SOLAR ACTIVITY

JUNE 1982

HALE REGION 18443 (CONT) CMP DATE 28.7

				CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	28	18443	N08	W01	180	700	3.0		N13	W11				B		1	AXX
82	06	30	18443							N07	W26				H	40	4	BXO
82	07	1	18443	N08	W41	181	900	3.0	23199	N07	W41	182	(B)	3	H	30	2	BXO
82	07	2	18443	N08	W54	181	700	2.5		N06	W58				P	20	1	AXX
82	07	3	18443	N08	W69	181	700	2.0										
82	07	4	18443	N09	W82	181	300	1.0										

HALE REGION 18444 CMP DATE 28.8

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	23	18444	S17	E70	176	200	1.0										
82	06	25	18444						23197	S18	E42	178	(B)	4	H	30	2	CAO
82	06	26	18444	S17	E24	182	500	3.0	23197	S18	E29	177	(B)	4	H	40	10	BXO
82	06	27	18444	S16	E14	179	700	3.0	23197	S16	E16	178	(B)	5	H	40	14	CRO
82	06	28	18444	S16	E01	178	1000	3.0	23197	S16	E02	178	(B)	5	H	60	7	DAO
82	06	29	18444							S13	E16				H	10	6	BXO
82	06	30	18444							S13	E06				H	30	4	BXO
82	07	1	18444	S15	W40	180	1000	3.5	23197	S15	W38	179	(B)	4	H	50	2	CSO
82	07	2	18444	S14	W53	180	1000	3.0	23197	S15	W52	180	(B)	3	B	20	1	AXX
82	07	3	18444	S14	W66	178	1000	3.0		S15	W69				H		1	AXX
82	07	4	18444	S13	W79	178	800	2.5										

HALE REGION 18447 CMP DATE 29.7

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	26	18447	S44	E40	166	100	1.5										

HALE REGION 18452 CMP DATE 30.9

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	06	28	18452	S12	E28	151	300	2.0		S13	E31				H	10	3	BXO
82	06	29	18452							S13	E16				H	10	6	BXO
82	06	30	18452							S13	E06				H	30	4	BXO
82	07	1	18452	S15	W11	151	400	2.5										
82	07	2	18452	S13	W24	151	300	2.5										
82	07	3	18452	S13	W38	150	200	2.0										

NOTES:
No solar magnetograms were made at Kitt Peak National Observatory on June 1, 7, and 30, 1982.
Calcium filterheliograms were not taken at Big Bear Solar Observatory on June 24, 25, 29, and 30, 1982.
No Mt. Wilson sunspot data were available for June 18, 29, and 30, 1982.
Contiguous plages for June 1982: None

DAILY CALCIUM PLAGE INDEX

JUNE 1982

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
82	6	1	26.0	82	6	11	41.9	82	6	21	57.8
82	6	2	27.9	82	6	12	50.7	82	6	22	54.0
82	6	3	30.8	82	6	13	53.8	82	6	23	45.1
82	6	4	31.0	82	6	14	64.2	82	6	24	*
82	6	5	30.9	82	6	15	64.6	82	6	25	*
82	6	6	74.8	82	6	16	66.9	82	6	26	15.3
82	6	7	40.5	82	6	17	69.4	82	6	27	14.2
82	6	8	40.2	82	6	18	76.2	82	6	28	15.8
82	6	9	34.9	82	6	19	65.3	82	6	29	*
82	6	10	36.0	82	6	20	73.0	82	6	30	*

* NO OBSERVATIONS

BIG BEAR SOLAR OBSERVATORY
ACTIVE REGION LIST FOR MAY 1982

Region	Identification	Age	First Seen	Duration
18357	New	1	5/2	>01 Days
342	18300	2	4/24	>09
346	New	1	4/26	>07
352	New	1	4/30	>11
351	18301	2	4/30	>11
347	New	1	4/26	12
348	18298	3	4/27	13
354	18302	2	5/1	>10
355	Northern Portion of 18301	2	5/1	>10
356	New	1	5/1	12
367	18307	3	5/6	>07
361	Portions of 18292, 18306, 305 & 311	2,3,5,3	5/6	10
358	New	1	5/6	>07
359	18308	3	5/6	11
362	New in Location of 18311	1	5/6	10
360	New	1	5/6	11
363	18310	2	5/6	11
371	New	1	5/9	02
365	New	1	5/6	12
364	18314	3	5/6	13
366	New	1	5/7	06
368	18320	2	5/8	11
369	18317	2	5/9	08
370	18319	4	5/10	12
374	New	1	5/15	08
372	New	1	5/12	11
373	New	1	5/12	12
375	New	1	5/15	05
381	New	1	5/16	04
376	New	1	5/15	09
389	New	1	5/19	06
377	18326	4	5/15	12
388	New	1	5/21	06
378	Portions of 18327, 18331 & 18332	3,2,2	5/15	13
379	18329	2	5/15	13
380	Portions of 18326	4	5/15	12
383	New	1	5/17	>11
382	18330	4	5/16	13
384	New	1	5/17	>11
385	18334	5	5/18	>10
386	18343	2	5/18	>10
387	New	1	5/19	>09
392	New	1	5/22	>06
390	New	1	5/21	>07
391	New	1	5/21	12
393	New	1	5/23	>02
397	New	1	5/27	>01
394	18347	2	5/23	13
396	New	1	5/25	12
399	New	1	6/1	05
400	18348	4	5/25	12

Notes

Contiguous Plages: 18355/18356, 18359/18360.

KPNO Magnetograms were not taken on May: 03-05 and 10.

Calcium Filter Heliograms were not taken at Big Bear Solar Observatory on May: 03-05, 11, 13 and 14, 20, 25, 28 - 31.

Mt. Wilson sunspot data were not taken on May 4, and 8-10, 1982.

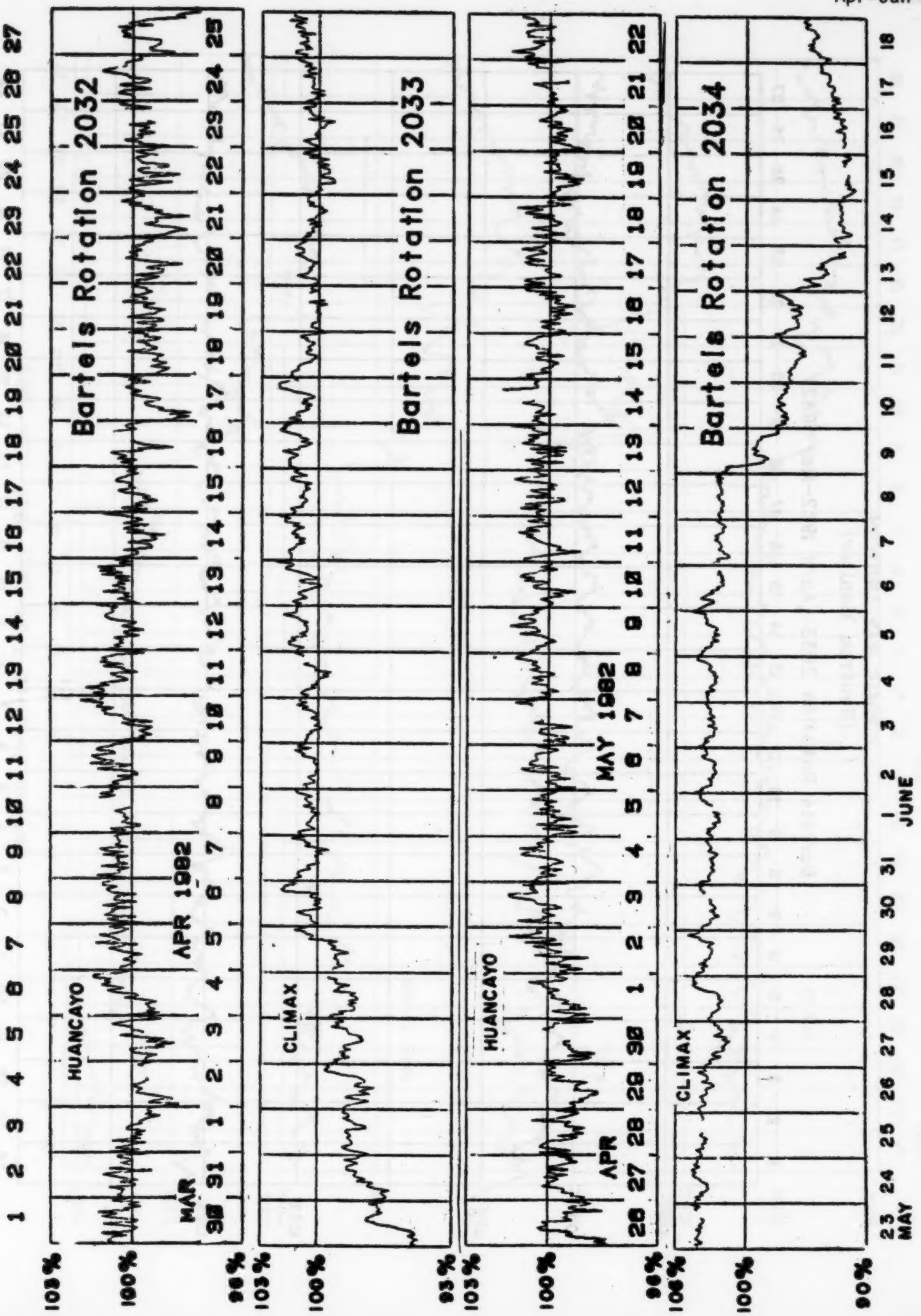
COSMIC RAY INDICES
(Neutron Monitor)

	APRIL 1982	MAY 1982				JUNE 1982		
Day	HUANCAYO Average (cts/h)/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)100
1	1732.5	5767.5	3738.4	3535.1	1725.1	5819.5	3807.2	3518.7
2	1725.8(38)	5810.3	3774.0	3533.4	1730.5	5826.0	3812.2	3519.8
3	1730.3	5859.9	3815.8	3553.1	1737.9	5840.9	3811.2	3518.0
4	1739.4	5839.5	3811.8	3554.2	1735.8	5851.5	3811.1	3524.9
5	1743.0	5837.0	3813.5	3547.5	1729.7	5867.6	3813.8	3531.1
6	1746.6	5834.2	3809.5	3539.7	1734.3	5855.7	3798.8	3528.8
7	1745.9	5850.6	3809.0	3535.2	1733.9(36)	5819.6	3777.5	3519.6
8	1744.0	5844.0	3806.2	3545.7	1739.1	5809.0	3778.7	3513.4
9	1748.0	5851.2	3832.8	3552.5	1741.4	5665.8	3668.9	3454.2
10	1742.9	5862.2	3827.7	3549.0	1735.2	5548.2	3585.2	3417.1
11	1748.8	5856.9	3842.8	3552.4	1738.0	5519.5	3550.6	3404.1
12	1744.7	5850.2	3829.0	3547.7	1738.4	5504.9	3559.0	3422.4
13	1744.2	5859.4	3842.3	3554.2	1739.3	5374.2	3461.8	3392.6
14	1733.5	5889.2	3835.7	3551.9	1741.1	5314.8	3402.0	3380.9
15	1736.4	5864.4	3819.5	3559.1	1738.5	5303.1	3383.8	3394.7
16	1736.7	5847.1	3798.1	3550.2	1730.9	5335.8	3402.0	3406.3
17	1725.5	5853.5	3817.5	3557.0	1739.4	5383.0	3438.4	3422.7
18	1723.7	5840.2	3805.0	3542.0	1734.0	5457.5	3485.7	3438.4
19	1727.8	5805.4	3789.0	3534.4	1727.3	5487.7	3533.3	3463.6
20	1727.7	5825.5	3800.2	3540.0	1727.0	5465.9	3525.0	3458.7
21	1723.9	5863.1	3809.1	3554.0	1733.2(38)	5462.4	3516.2	3452.9
22	1727.7	5881.2	3827.3	3566.0	1742.3	5478.1	3534.0	3465.4
23	1731.9(38)	5907.2	3841.6	3571.5	1750.0	5536.4	3566.0	3477.7
24	1738.2	5893.0	3840.7	3574.7	1746.3	5545.2	3582.5	3468.6
25	1723.0	5869.4	3831.6(36)	3574.0	1745.7	5534.8	3587.6	3466.5
26	1717.3	5882.9	3824.8	3568.1	1740.7	5549.6	3586.4	3467.5
27	1724.0	5806.7	3783.8	3538.2	1721.6	5589.0	3613.6	3486.9
28	1723.3	5817.7	3810.8	3540.7	1721.4(38)	5602.4	3612.6	3478.8
29	1718.2	5838.5	3826.5	3544.2	1730.8	5563.9	3584.9	3471.0
30	1721.2	5832.3	3814.0	3534.7	1725.2	5551.8	3597.3	3477.3
31		5831.5	3808.4	3524.5	1724.1			
MEAN	1733.2	5847.5	3814.3	3549.2	1734.9	5582.2	3607.3	3464.8

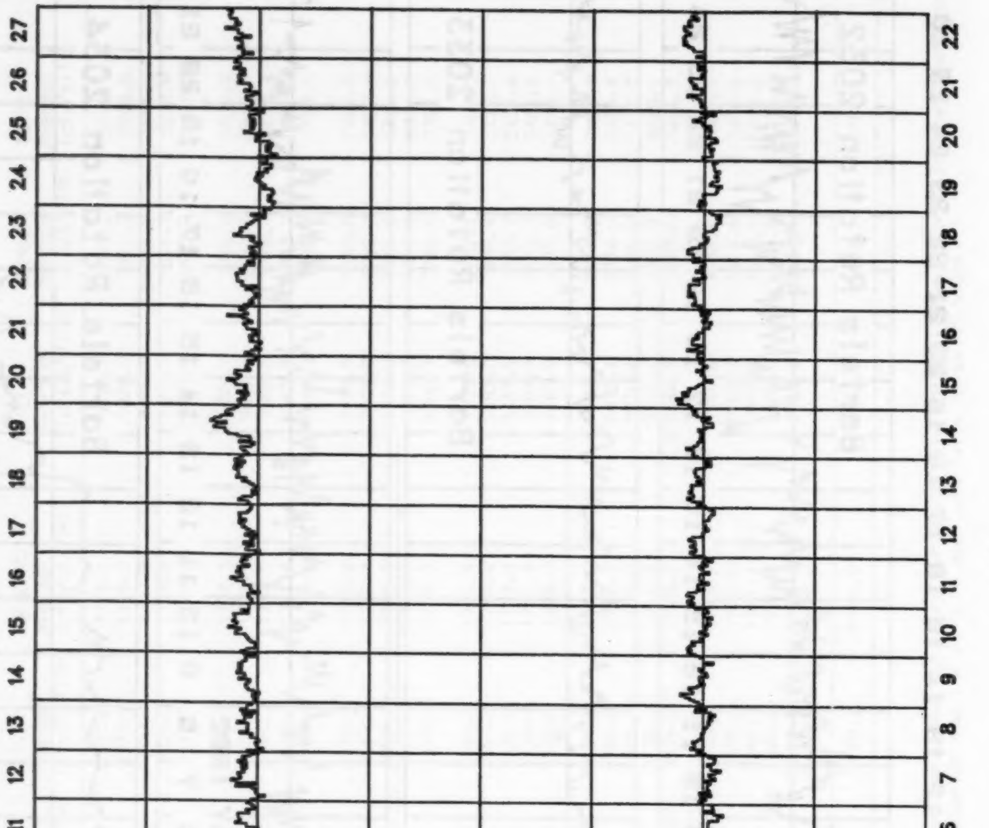
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

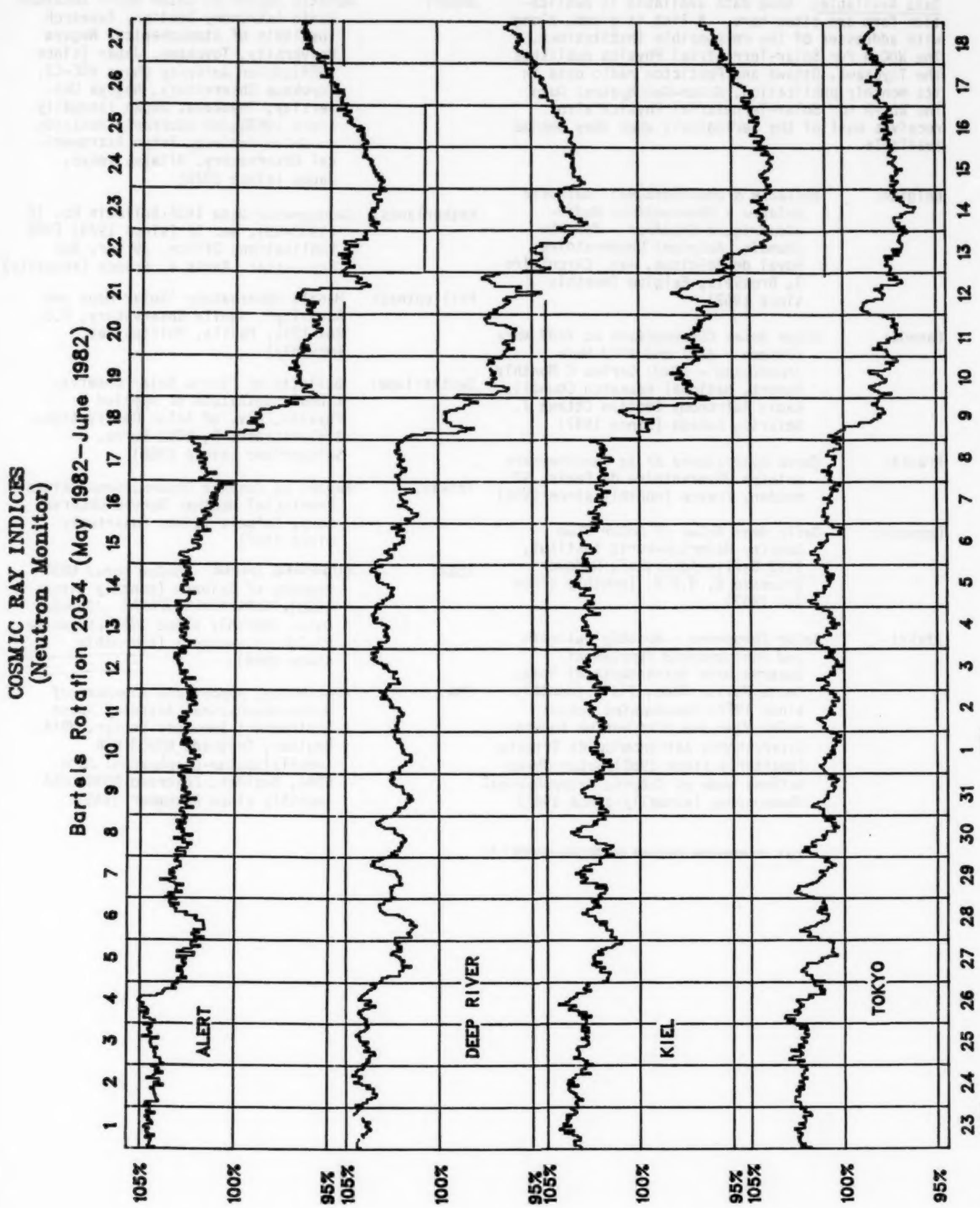
COSMIC RAY INDICES
(Neutron Monitor)

COSMIC RAY INDICES
(Neutron Monitor)



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2033 (April 1982–May 1982)




COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2034 (May 1982–June 1982)
ALERT
DEEP RIVER
KIEL
TOKYO
105%
100%
95%
MAY
JUN

SOME OTHER SOURCES OF DATA

Data Available: Some data available in publication form are cited here. A list is given, along with addresses of the responsible institutions. The WDC-A for Solar-Terrestrial Physics publishes the Toyokawa, Ottawa and Penticton radio data in its monthly publication, *Solar-Geophysical Data*. The WDC-A for Solar-Terrestrial Physics also receives most of the periodicals when they become available.

Belgium: *Bulletin d'Observations: Activite Solaire - Observations Radio-electriques Solaires - 600 MHz (Humain, Belgium)* Observatoire Royal de Belgique, Ave. Circulaire 3, Brussels, Belgium (monthly since 1962)

Canada: *Solar Noise Observations at 2800 Mc/s (Ottawa - ARO) and 2700 Mc/s (Penticton - DRAO)* Series C Monthly Report, National Research Council, Radio Astronomy Section Ottawa 7, Ontario, Canada (since 1947)

France: *Carte Synoptiques de la Chromosphere Solaire* Observatoire de Paris, 92 Meudon, France (monthly since 1931)

Germany: *Daily Mean Value of Solar Flux Density* Heinrich-Hertz Institut, 1199 Berlin-Adlershof, Rudower Chaussee 5, G.D.R. (monthly since Jul 1957)

Italy: *Solar Phenomena - Monthly Bulletin and Photographic Supplement* Osservatorio Astronomica di Roma, Monte Mario, Rome, Italy (monthly since 1958); *Osservazion Solari, Solar Flux and Distinctive Events* Osservatorio Astronomico Di Trieste (quarterly since 1965); *Solar Observations made at Catania Astrophysical Observatory* (annually since 1967)

Japan: *Monthly Report of Solar Radio Emission* Radio Astronomy Section, Research Institute of Atmospherics, Nagoya University, Toyokawa, Japan (since 1956); *Solar Activity Chart* WDC-C2, Toyokawa Observatory, Nagoya University, Toyokawa, Japan (annually since 1968); *IAU Quarterly Bulletin on Solar Activity* Tokyo Astronomical Observatory, Mitaka, Tokyo, Japan (since 1978)

Netherlands: *Geomagnetic Data* IAGA Bulletin No. 12 (1932-69), No. 32 (since 1970) IUGG Publications Office, 39 ter, Rue Gay-Lussac, Paris V, France (annually)

Philippines: Manila Observatory "Solar Maps and Activity", Manila Observatory, P.O. Box 1231, Manila, Philippines (monthly)

Switzerland: Bulletin of "Berne Solar Observations", Institute of Applied Physics, Div. of Solar Observations, Sidlerstrasse 5, 3012 Berne, Switzerland (since 1968)

Taiwan: *Report on Sunspot Observations* Taiwan Provincial Weather Bureau Observatory, Taipei, Taiwan (quarterly since 1957)

USSR: СОЛНЕЧНЫЕ ДАННЫЕ *(Solar Data)* USSR Academy of Science (monthly since 1958); КОСМИЧЕСКИЕ ДАННЫЕ *(Cosmic Data)* (monthly since 1962); *Magnetic Fields of Sunspots* (bimonthly since 1964)

USA: *Preliminary Report and Forecast of Solar-Geophysical Activity* Space Environment Services Center, NOAA, Boulder, Colorado 80303 USA (weekly); *Solar-Geophysical Data* NOAA, Boulder, Colorado 80303 USA (monthly since November 1955)

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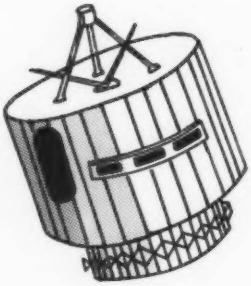
DATA ANNOUNCEMENT

SPACE ENVIRONMENT DATA
from the
SMS & GOES SATELLITES

The Space Environment Monitor instrument package on-board all SMS/GOES satellites has provided magnetometer, energetic particle, and soft X-ray data continuously since July 1974. Two SMS/GOES satellites operate simultaneously in the Earth's equatorial plane. They travel in geosynchronous orbit (6.67 Earth radii) and are generally located at 75° and 135° west longitude. This trajectory allows the detectors an unobstructed view of the Sun for all but the few dozen hours per year that the Earth eclipses the Sun. The time resolution for all three sensors is approximately 3 seconds, which permits one month's data from each sensor to be stored on a single 9-track, 1600-BPI, binary tape. Plots are available on microfilm.

MAGNETOMETER

A twin fluxgate spinning sensor allows representation of the Earth's magnetic field in three mutually perpendicular components: H_p, H_e and H_n. H_p is parallel to the satellite spin axis, which is itself perpendicular to the satellite's orbital plane. H_e lies parallel to the satellite-Earth center line and points earthward. H_n is perpendicular to both H_p and H_e, and points westward. Field strength changes as small as 0.2 gamma can be measured.



PARTICLE DETECTOR

Solid state detectors with pulse height discrimination measure protons from 0.8 to 500 MeV, alpha particles from 4.0 to 392 MeV, and electrons with kinetic energies greater than or equal to 2.0 MeV. Since solar protons and alpha particles in these energy ranges accelerated in solar flares can reach the vicinity of Earth, they pose a hazard to manned space flight and to high-altitude aircraft. They can as well significantly affect the high-latitude ionosphere.

X-RAY DETECTOR

Ion chamber detectors provide whole Sun fluxes for the 0.5-to-4 and 1-to-8 Angstrom X-ray wavelength bands. These observations furnish a sensitive means of detecting the start of solar flares and thereby changes in the dayside ionosphere.

Address your inquiries to Mrs. Viola Miller, National Geophysical Data Center, NOAA code D631, 325 Broadway, Boulder, Colorado 80303, USA (Telephone (303) 497-6136, FTS 320-6136).

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